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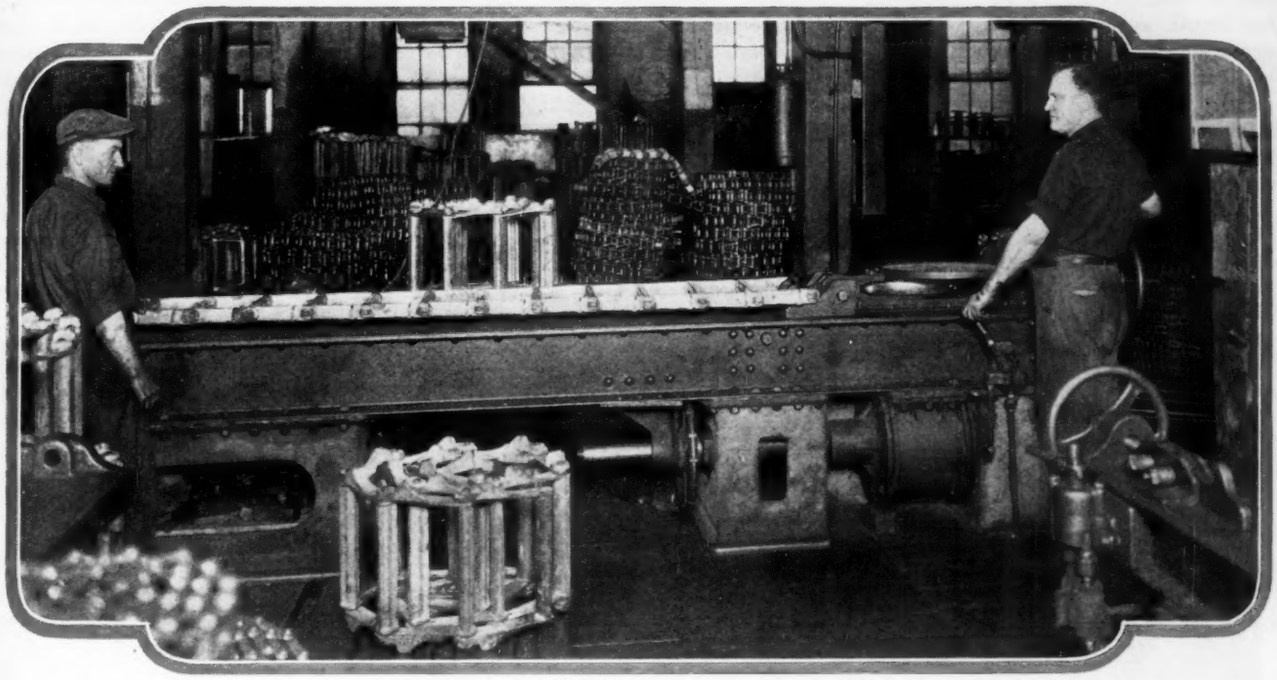


Fig. 1—One of several dynamometer machines used in tension testing the chains before the final inspection

Making Chain on Mass Production Basis

Heat Treating, Involving Carburizing, Is Important Step in Production of Conveyor and Drive Chain

By J. B. Nealey

MASS production has been made possible by power and machinery but its great expansion is due measurably to the adoption of continuous conveyor systems to the moving of the product progressively through successive operations. This is a comparatively modern trend in manufacturing and the possibilities in the field of power conveyors and conveying equipment are far from being fully developed as yet.

The processes and material handling of a long list of industries are accomplished through the aid of conveyors, elevators and chain drives developed and manufactured by the Chain Belt Co., Milwaukee, Wis. The facilities of this company are most complete and have been built up over a period of more than 30 years. Practically everything used in the finished product is manufactured in its own shops and foundries. The main plant of the four operated by the company is occupied with the manufacture of chain and includes a gray iron foundry.

The links for the malleable iron chain assembly are all cast in the foundry and consist of a full line of assorted sizes, types and designs, which are sorted out and stored on the third floor in bins correctly marked. At one end of the building is a battery of chutes to the assembly tables on the floor below. Trucks of links of the specified type and size are picked up on order and dumped down these chutes to the assemblymen

The author, J. B. Nealey, is affiliated with the American Gas association, New York.

waiting below. Here are long rows of tables flanked by different compartments for the various sizes, types or parts as the case may be.

Inasmuch as the assembled chains are stiff, machines are provided for working them until limbered up. The chains then are inspected, measured for length and tested for strength in a machine which exerts a pull equivalent to the working load at which they are rated. One of these dynamometers is shown in Fig. 1. Storage for loose parts and both iron and steel stock chain is maintained on the first floor. A forging shop for forging out the parts of heavy steel chains is equipped with a row of big power presses. Stock for some of these presses is heated in gas-fired furnaces about 5 feet wide, 10 feet deep and 4 feet high. There are five burners firing into each side of the furnaces and the stock is heated to approximately 1600 degrees Fahr. Capacities of the presses range from 28 to 400 tons; both hot and cold stock is punched and formed.

The steel chain department, housed in a building 150 x 200 feet in size, contains overhead galleries located on three walls. The raw material is stored here and dropped by chutes to the machines below as ordered. This raw material consists of pin blanks with one end already upset, rivet blanks, bars and tubes for rollers, bushings, etc. The long bar stock is kept on the floor and is sheared as needed. A general machine shop for making tools, dies and jigs is also located in this gallery and a second floor which is built over one end. This plant is equipped with rows of punch presses, forming presses, multiple drill presses, multiple milling machines, boring mills, breaching machines, automatic lathes, automatic screw machines, and shapers. There is an overhead electric crane with a 60-foot span, and a spur track from the Chicago, Milwaukee and St. Paul railroad runs through the building.

Pin blanks dropped by chute are milled on two sides of one end in multiple milling machines which carry 36 at a time. Cotter pin holes are drilled in multiple drill presses, of which a large battery is provided to accommodate various sizes. Roller and bushing stock (tubes) is cut up in automatic lathes making as high as eight cuts at a time. The rod stock ranges from 3 to 4 inches and the tubes from 1¾ to 2½ inches in diameter. The blanks are then chamfered and flat milled.

The heat treating department is modern in every respect. A group of four furnaces about 5 feet square and 10 feet long, are used for hardening, drawing and carbonizing. These are fired with five gas burners each and steel quench tanks are located in front and are sunk to the floor level. The work is handled with an overhead monorail hoist and swing cranes. The ends of the through rods for the big conveyor chains are carbonized in boxes 30 inches long and 8 inches wide. These boxes, having 45 holes in one long side, are filled with carbonizing material and the ends of the rods inserted. The rods are then sealed in the holes with fireclay and the boxes sealed into the furnaces with more fireclay, the long ends of the rods protruding.

These are held at about 1650 degrees Fahr. from 7 to 8 hours, quenched in water and reheated to 1425 degrees Fahr. for 45 minutes and then quenched again. Bushings, gears, mixer and paver bolts, axles, shafts and miscellaneous parts are carbonized here. Some pins, bushings, gears, rollers, bolts, steel castings and miscellaneous parts are hardened and drawn here. The low carbon steel parts are carbonized and the high carbon ones hardened and drawn. Indicating pyrometers are provided as an aid to maintaining the correct temperatures.

Another setup for carbonizing and quenching consists of four rotary carbonizing furnaces, shown in Fig. 4, fired with eight gas burners on each side. In front is a track on which two steel quench tanks run back and forth so that either can be placed in front of any furnace when required. Each tank is provided with a rotary inclined cylinder with screw shaped baffles on the inside. The work is dumped from the furnace into the tank and is then agitated and removed by the conveyor and dropped into barrels. A heat of 1650 degrees Fahr. is maintained from 1½ to 7 hours according to the depth of case required, recording pyrometers regulating the temperature. There are also two rotary drawing furnaces for bushings, pins and rivets only. Of particular interest is a long rotary hardening furnace, shown in Fig. 3, which is 15 feet in length and 4 feet in diameter. It is fired with gas burners on each side and the correct temperatures are maintained by an automatic pyrometer control. A spiral screw on the inside moves the work

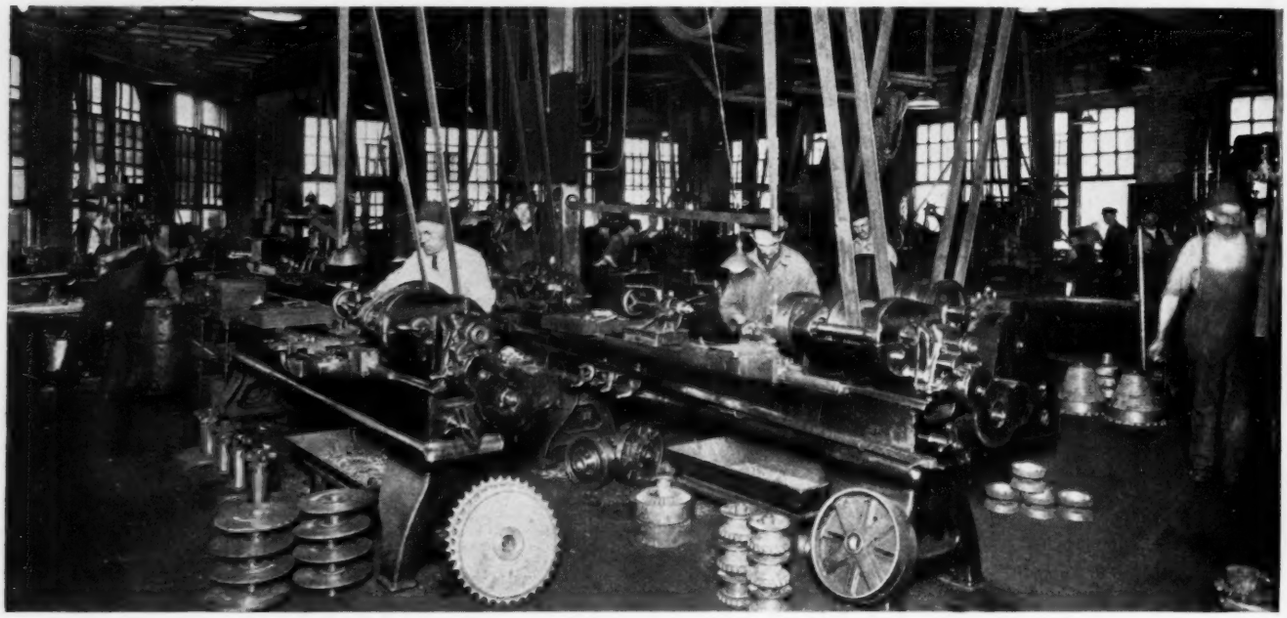


Fig. 2—Section of the machine shop for making tools, dies and jigs and special parts

along from charging to discharging end and a variable speed transmission controls the heating period by regulating the speed of rotation. The furnace is charged from a hopper equipped with an automatic loading device which accurately controls the flow of product into the furnace. This consists of a revolving bucket which automatically fills itself and dumps at intervals synchronized with the speed of the furnace rotation. The discharge is automatic and two quench tanks are provided, one with oil and one with water. The product can be diverted into either tank by a swinging chute. Each of these tanks contains a rotary inclined cylindrical conveyor which brings the work up and out of the quench continuously and drops it into containers. This unit is continuous and automatic in each operation, as to temperature and heating period.

The temperature range for this unit is from 1400 to 1650 degrees Fahr. and the heating periods are from 15 minutes to 1¼ hours. The capacity

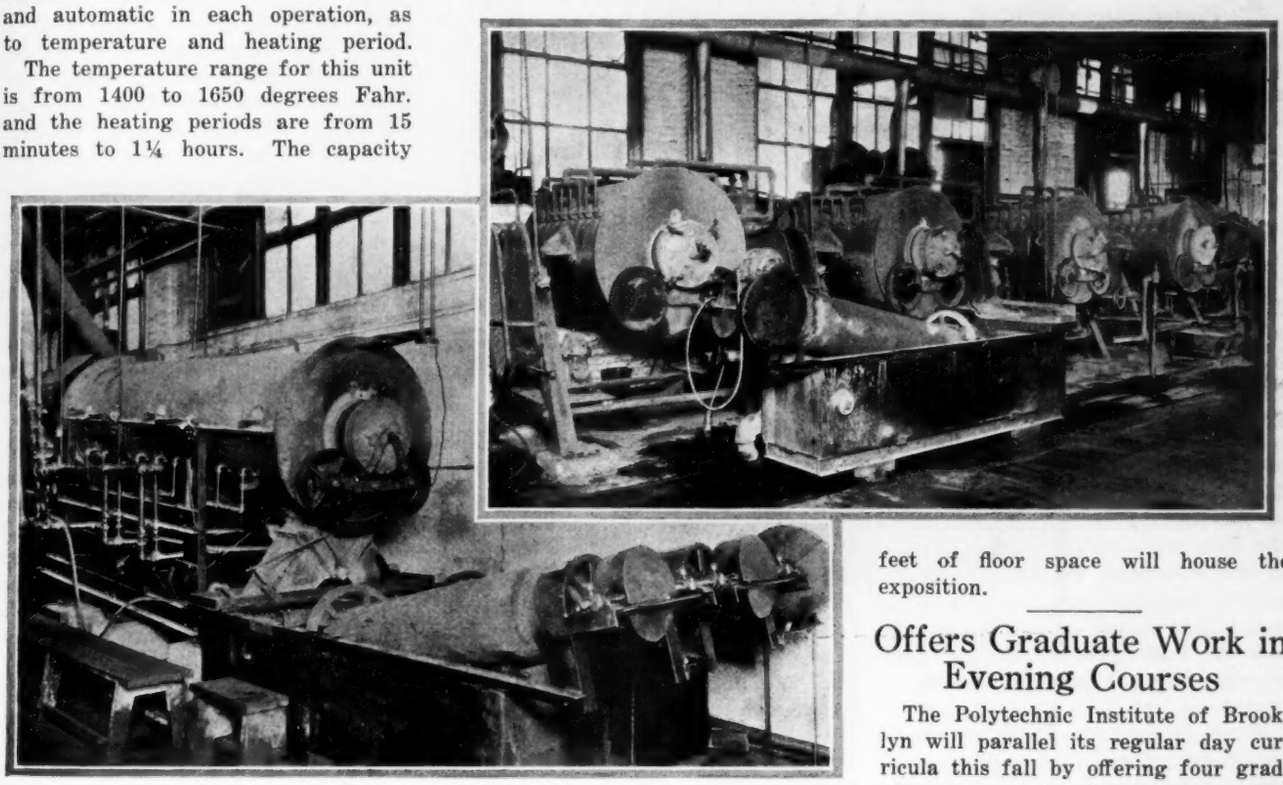


Fig. 3—Automatic and continuous gas-fired hardening machine equipped with oil and water quenches and an automatic loading device. Fig. 4 (at right)—Group of rotary, gas-fired, heat treating machines. A portable quench tank is located on track in foreground

is 750 pounds of work per hour and fuel consumption is 3300 cubic feet of gas per ton of work.

The gray iron foundry is in a separate building 75 x 300 feet in size and contains one cupola. There are two overhead traveling cranes. Standard equipment is provided for core and flask making. One thousand-pound ladles, operated on tracks, serve the pouring floor.

The first blast furnace on the continent of Europe to use coke regularly as a fuel was built about 1788 at Creusot, France.

Plating and Rolling Mill Planned in Germany

Trade Commissioner James E. Wallis, Berlin, Germany, recently has advised the commerce department that a new plating plant and rolling mill is being constructed by the Eisen and Stahlwerke Actiengellschaft of Dartmund, on its property "stockheide" in the Ruhr. In this new mill it is planned to roll aluminum, and later other metals, on ordinary black steel sheets by a special, patented process, the invention of an engineer of the Wickeder Iron & Steel Works. Machinery for the new plant is being manufactured by the Krupp Works. Experiments in the use of this aluminum plate in the manufacture of various articles now usually made of tin plate, especially cans for preserving foodstuffs, are said to have resulted most satisfactorily.

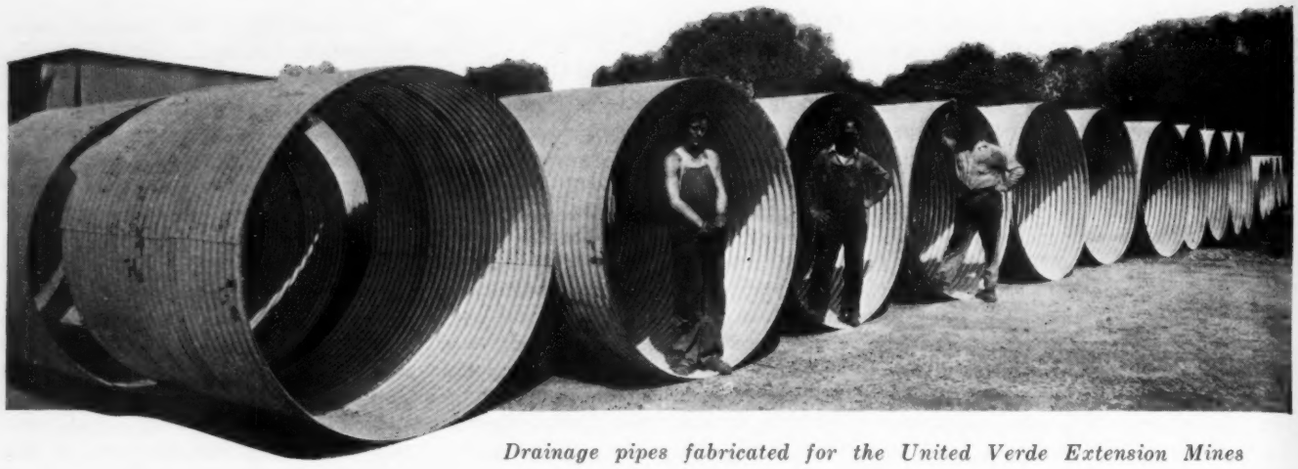
Philadelphia Exposition To Attract Many

Inasmuch as there are more than one and one half times as many metal using and metal working establishments within a radius of 150 miles of Philadelphia than in any like area in the United States, with the exception of New York, the American Society for Steel Treating, expects attendance at the National Metal Exposition, Oct. 8-12, in Philadelphia, to surpass the attendance figures of all previous expositions and conventions. Philadelphia is the center of the immense coal, steel and general manufacturing interests of the Middle Atlantic states and is well suited for a convention city because of its excellent transportation facilities and ample hotel accomodations. The exposition will be an outstanding event in engineering fields again this year since the American Society for Steel Treating, the American Welding society and the institute of metals division of the American Institute of Mining and Metallurgical Engineers all will conduct technical meetings concurrent with the exposition. Commercial Museum, with 80,000 square feet of floor space will house the exposition.

Offers Graduate Work in Evening Courses

The Polytechnic Institute of Brooklyn will parallel its regular day curricula this fall by offering four graduate courses in the evening which lead to the master's degree. These courses permit properly qualified graduates of universities and technical colleges, who are engaged during business hours, to continue their studies in chemistry and engineering. The degree of Master of Science in chemistry, or of master of civil, electrical or mechanical engineering is awarded upon the completion of certain advanced study and the submission of a satisfactory thesis. Graduate classes will open on Sept. 24 and registration may be made on and after Sept. 10 by application to the dean.

The United States cable to the Philippines was completed on July 4, 1903 and a message was sent around the world in 12 minutes.



Drainage pipes fabricated for the United Verde Extension Mines

Fabricating Steel "On the Job" in Arizona

THE Arizona plant of the Western Pipe & Steel Co. in Phoenix has just completed the contract for all the steel work in the new Roosevelt irrigation project, consisting of headgates, well casings and siphons. The work is divided into two parts, the collection system and the distributing system. The largest single item of steel construction was the building of the Agua Fria flume, forming the connecting link between the collection and distribution systems.

The collection system lies entirely within the territory of the Salt River Valley Water Users' association, east of the Agua Fria river and north of the Salt river. Within this area are 41 wells varying in depth from 167 to 212 feet and requiring a total of a mile and a half of casing, in addition to that included in the wells which were taken over intact from the parent project.

Much interest has been shown in the construction of the open flume that carries the water across the treacherous Agua Fria. This flume is 5959.59 feet long, of semi-cylindrical form, 14 feet in diameter, and carries the total water supply for the lands of the district, amounting to a maximum of 500 second feet, or 20,000 miner's inches.

The flume is supported throughout on a steel substructure, which for a distance of 1926 feet is in the form of steel trusses, each of 72 foot span, resting on reinforced concrete piers. The remainder is a series of bents, 258 in number spaced 18 feet apart, resting on concrete footing blocks and on concrete piles driven into the sand and gravel of the river bed. Of the total number of bents 125 rest on blocks and 133 on piles. Additional piles are used in groups of five each to form foundations for the piers which support the trusses. These piers are of duplex type; that is, each is formed by two tall piers connected by a web of reinforced concrete placed transversely to the center line of the flume. Each pier has a base approximately 6 feet wide by 8 feet long and tapers to about 2 x 3 feet at the top. The structure is notable for its neat appearance and structural soundness.

A. A. Burden, Phoenix manager, was sent to the Salt River valley six years ago from the San Francisco plant, and installed the Phoenix plant with an idea of adapting it to what demands the new projects in the desert country should develop. It is considered a model plant in point of flexibility.

Culvert pipe and casing constitute the bulk of the output, the main consumers being the mines and irrigation projects. Highway work also has come in for particular attention.

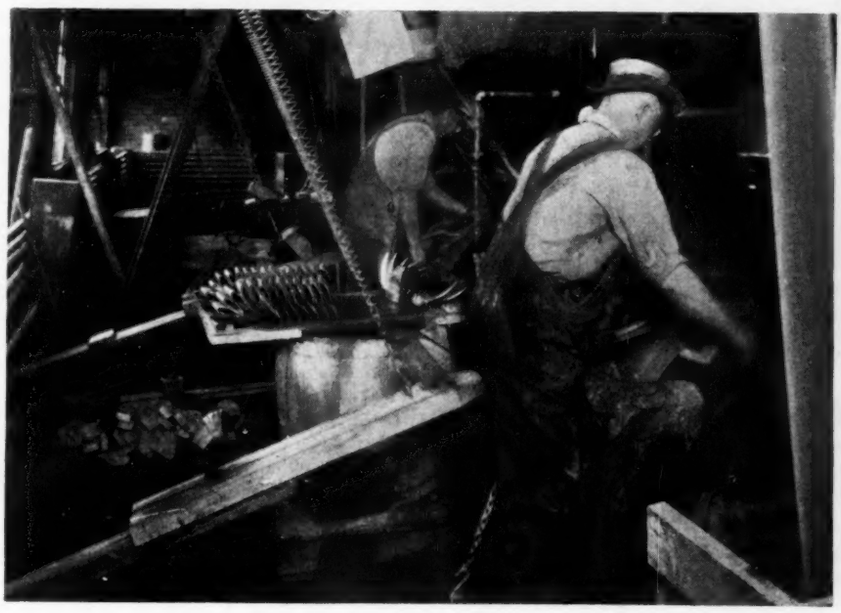
Headgates for irrigation project in Arizona. This was formerly a desert waste

LARGE USES of STEEL in SMALL WAYS

Axes—123rd Article

EVER since the early Colonial days the ax has been an important tool in the rural life of the country. First used by pioneers in the construction of log cabins, it is still useful for felling trees in the lumber industry, and hundreds of new uses have been developed.

The falling off in demand for axes for house building and other purposes of a generation ago, has been more than made up by the increase in population and diversity in application. The result is that the production of axes in this country has been increasing constantly until it now is well over 1,000,000 a year. One eastern company makes 100,000 ax heads, and the average weight is about 3½ pounds. Extending this to the total production it is seen that 1,000,000 axes will require over 1750 tons of steel or wrought iron.



Grinding axes in a plant 100 *years old*

Most axes are made of steel. A common type of ax is made by what is known as two-piece construction. The poll, or heavy portion of the ax head, is forged from an open-hearth steel bar, and on to this is welded a high-carbon crucible steel bit or edge piece. The steel for the poll pieces of standard single bit axes is supplied in wedge shape bars. These are cut under power shears to the desired length, and are then heated for the first forging operation. The pieces are shaped roughly into the form of ax heads and a hole is punched in each for insertion of a handle.

The bit steel also is supplied in specially formed bars. Makers of high-grade axes sometimes import this material from Europe, where the steel is made from Swedish iron. The bit pieces are formed into small channels which slip over the edge of the poll pieces. In this position, the two pieces are heated to the proper temperature and are then welded into the unit under a heavy trip hammer. During this operation a steel pin is inserted in the open eye to prevent its closing.

Under a light power hammer the ax forging is given its approximate final form and is further shaped by grinding on a large sandstone wheel. After this comes the heat treatment and then follow three or four sharpening and polishing operations on standard artificial grit wheels. And finally comes the sorting, inspection, inserting of handles, and packing for shipment.

United States census reports do not cover axes as a separate item, but they show that the value of edged tools made in the United States has increased from about $17,000,000 in 1914 to $56,000,000 at the present time. The estimate of the weight of steel used in the manufacture of axes is based on the weight of the finished tool. It does not include the small wedge pieces which are inserted in the end of the handle to keep them tight. These pieces frequently are castings.

The weight of the high-carbon crucible steel is about one-tenth of the whole.

One of the largest manufacturers has estimated that 1000 tons of this grade of steel is used each year in the manufacture of axes and that 7000 tons of low-carbon, open-hearth steel bars are used.

A curious outlet for axes is found in the equipment of the standard Pullman car. These axes are seldom used, but they are made of high-grade finely tempered steel because if they should be used in case of emergency, the need for a good tool would be great.

The Boy Scout movement is another development which has swelled the ax demand. There are about 800,000 Boy Scouts in the country, and each must have his Scout ax.

THIS is the one-hundred twenty-third of a series of articles dealing with some of the obscure uses of steel which go far toward absorbing the American tonnage.

Among articles appearing every two weeks and not included in Vol. I containing 51 *separate descriptions are:*

Vacuum Bottles	*Suspenders*
Highway Guards	*Screw Hooks*
Numbering Machines	*Steel Bridging*
Joist Hangers	*Mail Boxes*
Straight Razors	*Steel Shelving*
Piano Wire	*Automobile Bumpers*
Type Molds	*Tire Chains*
Swords	*Bathroom Fixtures*
Paving Guards	*Snow Fences*
Reaction Kettles	*Stairs*
Fire Screens	*Cork Screws*
Voting Machines	*Universal Shafts*
Display Racks	*Sewing Machines*
Steel Stamps	*Lanterns*
Wire Screens	*Cleats*
Typewriter Spools	

FACTORY REQUIREMENTS 1928							
Items	Sales Past Periods	Estimated Sales Jan. 1 Dec. 31	Estimated Inventory Dec. 31	Estimated Inventory Jan. 31	Amount Required for Stock	Direct Shipments	Total Required from Factory

Budgeting Sales and Sales Expenditures

By J. J. Berliner

OWNERS or officials of a company should estimate the probable sales of their business for each season or fiscal period, as a basis for planning for the future. These estimates may be made unscientifically and recorded informally, or they may be made as the result of careful analysis of all factors, and presented by means of a formal report.

In any manufacturing enterprise, the volume and nature of production is dependent on the sales estimated. If a sales estimate is not made by the sales department, the probable sales must be estimated by the purchasing department or the production department, otherwise these departments have no basis for their plans. It is the purpose of this article to explain the method by which an estimate is prepared.

An estimate is essential for the coordination of all departmental activities. The production manager must base his production program on the anticipated sales; otherwise excess stocks will accumulate or orders will go unfilled. The plant engineer must plan his building and equipment program to meet the production program demanded by the sales estimate. The employment or personnel department must consider the increased or decreased demand for employes. The purchasing agent must contract for raw materials and supplies and schedule deliveries to meet demands of the production budget. The shipping department must adjust its capacity to meet the sales program, and the consequent production program. Without such co-ordination on the part of the various department heads efficient administration is impossible.

The author is senior member, National Accounting Systems, New York.

What the Estimate Is

Basis of sales estimate: The sales estimate is a report which gives in a summarized but comprehensive form the sales which the sales department desires and deems possible during the next budget period. In the preparation of this estimate information of various kinds must be considered which may be classified under the following general headings:

1—Knowledge of general plans and policies of the concern. Such information is obtained from the decisions of the owners or executive officers and board of directors.

2—Knowledge of trade conditions. Such information is obtained as a result of market analysis.

3—Knowledge of the amount and nature of previous sales as shown by the accounting records. Such information involves sales analysis and comparisons.

Revision of sales estimate according to production: After the sales estimate is submitted by the sales department, it should be studied carefully by the owners or executive officials and revised in the light of their information and judgment. It is useless to formulate a sales program which is beyond the capacity of the production department to satisfy. Consequently, data must be obtained which will show production capacity. It is then possible to determine whether the quantities called for by the sales estimate can be produced. If not, it is necessary to determine which items to reduce or eliminate.

Revision of sales estimate in terms of profit: Another important factor in deciding the desirability of the sales program proposed by the sales department is the estimated profit. It is desirable that the profit to be obtained by the sale of each item be determined. Sometimes because of competitive conditions it is necessary to sell certain unprofitable items to meet the demand of customers. Therefore, in the revision of the estimate in terms of profit, it is necessary to give careful consideration to the problem of providing complete lines, so that products may not be eliminated

which will result in decreased sales of others. On the other hand, care must be exercised to prevent the carrying of too many unprofitable items.

The sales budget and consideration of maximum gross profit: In revising the sales estimate in terms of profit it is necessary to consider not only the profit which has resulted from past operations, but also the probable profit which will result from anticipated operations. Changes in method or volume of production, as well as changes in method or volume of sales, may affect materially the profit obtained. To estimate more accurately the effect of these changes in production or sales it is necessary to consider the cost of production and selling and administrative expense, and the effect of the new program on these items.

Maximum Profit Sought

The sales program must provide for the maximum profit that trade conditions will permit, consistent with the permanency of the business. Here is one of the vital points in making over the sales estimate of volume into a sales program. The management must decide not only what increase in business is desired, but also what volume of business can be had at a maximum gross profit of selling price to the customer over the cost of production. Consequently, the estimated volume of each line must be re-estimated at the volume that will produce the greatest amount of gross profit.

Revision of sales estimates according to financial requirements: There are two ways in which the financial requirements may be considered. After the sales estimate has been revised, taking into consideration production capacity, profits, and the like, the amount of capital required to execute this program may be estimated. If this amount is in excess of that which the financial resources of the business will permit to be expended, it is necessary to revise the sales program. In making this revision the various factors previously discussed will be taken into consideration.

If the sales estimate is considered and revised in the manner suggested, the result will be the formulation of a program based on the following:

1—Past sales as reflected in the sales account of previous years.

2—General plans and policies of the concern as reflected by decisions of executive officials.

3—Trade conditions as determined by the study and research of the sales department.

4—The judgment of the sales unit, which makes the original estimate.

5—The judgment of the executive officials or owners who review the original estimates and makes such changes as deemed necessary.

6—The production or purchasing capacity of the business as reflected in the production and purchase estimate.

7—The gross profit-earning capacity of the different lines.

8—The selling and administrative expenses involved in handling different lines.

9—Financial requirements of the planned program.

10—The co-ordination of all the departmental estimates into a well-rounded program for the whole business.

11—The sales budget showing the volume of operations which the sales department is expected to perform, based on the budget of the business as a whole.

The process of making the sales program is not a simple one. Rather a sales program must be thought of as a combination of several estimates. It is a statement of past experience modified by future plans, which are in turn modified by trade conditions.

Difficult problems in preparing sales budget: The chief difficulties encountered in the preparation of the sales budget have been indicated. In order that they may not be disregarded or minimized, they are summarized:

1—Market fluctuations, which make it difficult to forecast future sales.

2—Seasonal fluctuations, which make it difficult to co-ordinate sales with production.

3—Inadequate statistics with reference to past sales, which make it difficult to estimate future sales.

Difficulties Can Be Overcome

Although it is impossible to eliminate these difficulties it is possible to overcome them to a considerable extent.

Need for estimate of selling expense: The selling expense estimate is needed for the following purposes:

1—That the sales department may be able to judge the desirability of its contemplated sales program. Without knowledge of its probable cost, it is unable to prepare and present for executive consideration an acceptable program.

2—That the sales department may have a basis for planning its sales campaign. It must know the funds which are available before it can enter into contracts for services or engage help.

3—That the treasurer may know the probable disbursements required by the sales program and can plan to obtain the funds necessary to meet these disbursements.

4—That the financial requirements of the proposed sales and production

SELLING EXPENSE BUDGET

MONTH

Items	Original Appropriation	Per Cent of Original Sales Expectancies	Additions	De-ductions	Present Appropriation	Per Cent of Present Sales Expectancies	Original Sales Expectancies	Additions	De-ductions	Present Sales Expectancies
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)

Form for making up a selling expense budget

programs may be judged at the time they are submitted to it for consideration. The selling expense in many cases constitutes one of the major items which appear on the disbursement side of the financial budget.

Importance of sales expense control: It is highly important that an effective control be exercised over sales expense if the greatest amount of profit is to be derived from the sales operations. Unless that is done this type of expense is apt to increase unduly.

The services obtained from the expenditures of the sales department are in the main of an intangible nature, and therefore difficult to appraise. For instance, it is usually difficult to determine accurately the benefit obtained from expenditures incurred for advertising, and the same is true to a considerable degree of expenditures for the services of salesmen. Some direct results can be traced, but many major results are so indirect that they cannot be connected directly with the expenditures.

Wisdom of Expenditures

If a purchase of materials is made for the production department, it is possible to connect directly the material received with the funds expended. It is possible to judge the wisdom of the expenditure by determining the value of the materials. But if space for advertising is purchased it is usually not possible to determine the number of orders which result from the expenditure. It is also difficult to determine for how long benefit may be derived from advertising. Orders may be received as a result of the advertising some time after the expenditure is incurred. Then again, a salesman may build up goodwill for his concern which will result in orders after his services are ended. Because of this indefinite relation between cause and effect, executives are apt to think that the sales expense is necessary and should be incurred even though direct results cannot be seen, and therefore, they may not scrutinize closely the amount of this expense.

Moreover, hardly any satisfactory standard exists by which to judge selling expenses. It is possible to determine the amount of raw materials and supplies necessary to produce a product, and to use this amount as a standard to judge future consumption, but there are no exact means of determining the amount of selling expense necessary to secure a dollar of sales, and therefore it is more difficult to formulate a standard by which to judge the quantity of selling expense.

Because of these conditions it is especially necessary that formal and exact control of selling expense be exercised. This control involves three steps:

1—Determination of what is included in selling expense and the setting up of a proper classification thereof.

2—Determination of standards by which to judge the amount of selling expense, and the use of these standards in the formulation of a selling expenses budget.

3—Determination of methods of enforcing the standards set, and the execution of these methods.

Expenses Classified

Classification of selling expenses: It is customary to charge as part of the cost of goods sold all expenditures incurred in connection with the product up to the time when it is ready to be offered for sale. This is based on the theory that the sales department does not have jurisdiction of the merchandise prior to this time and is not responsible for the expenditures incurred in connection with it. The first expense incurred by the sales department is in the securing of sales orders. This expense will include the cost of advertising. After the goods are sold they must be prepared for delivery to the customer, which involves packing in cases and shipping. It is possible to set up the following classification of sales expense:

1—Sales office expense.
2—Salesmen's salaries and expenses.
3—Packing and shipping.
4—Advertising.

Sales office expense: Sales must always be subject to some executive supervision and this supervision results in expense. The nature of the supervision exercised over sales will depend upon the size and organization of each individual concern. In most businesses there is a sales manager who is the executive head of the sales department, and frequently he is assisted by a staff. As the sales organization grows care must be exercised to avoid incurring unnecessary expense. It is natural that each subordinate office desires to enlarge its activities and because of this there may be a duplication of work.

Salaries and Expenses

Salesmen's salaries and expenses: There is usually little difficulty in deciding as to the items which should be included under this heading, or the proper method of recording and reporting them. The chief problem is the controlling of such expenses, for they have a tendency to become unduly large unless an effective check is exercised. One of the chief sources of difficulty is the determination of the proper method of compensating the salesmen for services.

If definite salaries are paid salesmen it often is difficult to determine the fairness of the amount paid. In an attempt to lessen the difficulty, salesmen may be paid in whole or in part by commissions. Some sales executives think that a salary plus commission is the most desirable method, on the theory that the work of a salesman cannot be judged entirely by the sales which are directly attributable to him. He may have a certain advertising value to the business which is not adequately measured in terms of the orders which he turns in. A salary which is not directly dependent on the volume of sales remunerates him for the work which he does toward building up the goodwill of the firm; whereas the commission which he receives, rewards efficiency. If a proper control is to be exercised over these expenses it is necessary to have records and reports which will provide an analysis of sales and selling expense showing:

1—Whether the salesman or the territory is responsible for the sales.

2—Whether the sales which are being made are of the goods which the company most desires to sell. The latter, at least, can be determined by obtaining the profit realized on sales made by each salesman and judging his efficiency in terms of profit rather by volume of sales.

Expense Budget Prepared

Preparation of selling expense budget: The sales office expense estimate will be prepared by the staff or the executive head of the office. The salesmen's salaries and expense estimate should be prepared by the immediate superior of the salesmen. If there are branch and division offices, they will prepare estimates for the salesmen belonging to their offices, to be forwarded to the sales manager at the general office.

The packing and shipping expense will be prepared by the head of the shipping department and forwarded by him to the sales manager. The sales manager will make such revisions as he thinks necessary in the estimates of his subordinates and forward them to the executive in charge of the budget procedure, with such recommendations as he may desire to offer. The executive in charge of the budget procedure will forward these to the budget committee, if there is one, which will make any revisions which it may think necessary and return them to the sales manager, who in turn will give to each subordinate his approved budget.

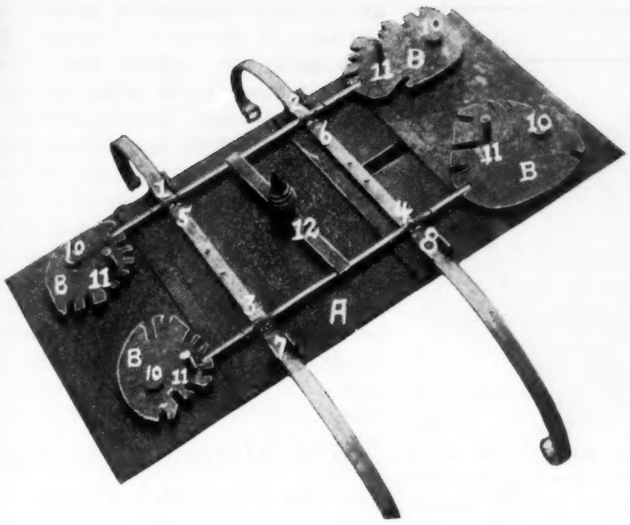


Fig. 1 (Left)—Revolving jig for holding springs and axles of baby carriage chassis during welding operations. Fig. 2 (Below)—Side view of jig table showing inclined position

Revolving Jigs Facilitate Welding of Pram Chassis

By H. C. Ten Horn

MY FACTORY serves the baby-cab and toy industry and the success I have hitherto attained in this business may be associated with the construction of pram chassis, folding cars and toys. I shall try to give the reader as clear an idea as possible of the applications of welding to this construction. As they are of great variety and have stood the test of time and daily practice I may safely leave the suggestion for their wider applicability to the reader.

Ever since I procured an arc welding outfit for repair work and had witnessed its operation, the idea that it might also be turned to account for production work left me no rest. Could the apparatus be used for joining steel parts in the construction of pram chassis, folding cabs and toys?

The spring chassis contains the principal riveted parts of a baby cab. The main difficulty is in joining the axles to the springs. If rivets are used each chassis will require in addition to springs and axles, four saddles and eight rivets. Inasmuch as the springs are of cold-rolled steel and are not hardened, it is apparent welding cannot be employed unless the temperature of the springs can be kept below the critical point. It has proved possible to make the welds without excessive heating of the steel by use of the arc welding method. To determine the degree of heating of the spring steel during the welding operation, experiments were conducted with polished steel samples. It was found that the steel never colored further than purple, which means it did not lose any of its elasticity.

Fig. 1 illustrates the method by which the welds were applied while keeping down the heat. The numbers 1 to 8 show the sequence of the welds. It will be noted that without any waiting and consequent waste of time, weld No. 1 will be already sufficiently cooled before weld No. 5 is applied.

The spring distance and axle distance differ greatly for different cabs. It was found necessary to construct a special jig in which all of the different sizes of chassis could be handled easily. The jig is shown in Fig. 1.

The sheet metal table *A* can be revolved but always will remain slanting as shown in Fig. 2. This construction permits the operator to stand upright thus enabling him to see the work clearly during every operation. Welds Nos. 1, 2, 3 and 4 are made and then the table is turned 180 degrees and welds Nos. 5, 6, 7 and 8 are made.

The four discs *B* are pivoted on the studs 10 and may be held fast in any of the various positions by means of spring guide pins 11. Each kind of chassis has a certain number, and in order to adjust the jig for the chassis of a given number, the operator has only to fit the guide pin into the numbers corresponding to it. (The slits in the discs and the holes in sheet *A* are marked with the same numbers). The axles are firmly pressed down by a spring pressed lever 12.

Two tables can be managed by one workman with the assistance of a boy for loading and unloading the jigs. Thus an output of 40 chassis per hour, involving 320 welds, can be attained. The method has proved highly satisfactory. The appearance and strength of the chassis are improved and the production per man hour is higher than under the former method of construction. The electric arc weld also has been applied to baby-cabs having under-

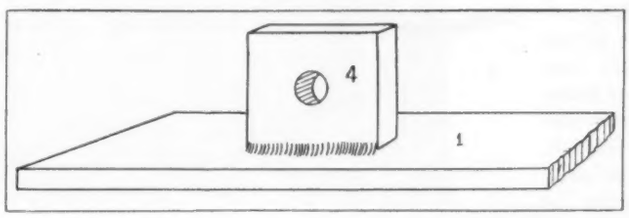


Fig. 3—One of the welding operations in fabrication of underslung chassis for baby carriage

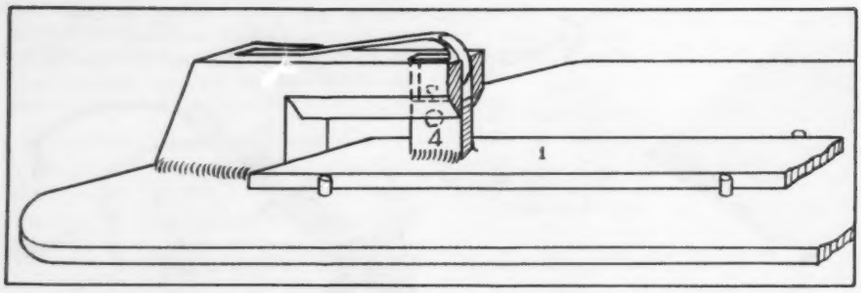


Fig. 4—Device for holding pieces "1" and "4" during welding operation. See Fig. 3

slung chassis. The pierced parts *4* in Fig. 3 are welded on either side to the rods *1*. For this purpose another fixture had to be designed, which is shown in Fig. 4. This jig is clamped to a turntable which greatly facilitates welding. One welder with a helper can operate two tables, completing 150 pieces per hour.

The axles are welded in a jig as shown in Fig. 5. The holes *A* and *B*, destined for the bolts to fasten the coilsprings, can first be utilized for the guide pins during welding. A turn spring lever *C* presses the axle firmly against the parts *D* and *E*. This jig also is clamped to a turntable and by its help an output of about 80 an hour can be maintained by an operator and an assistant, who loads and unloads the tables.

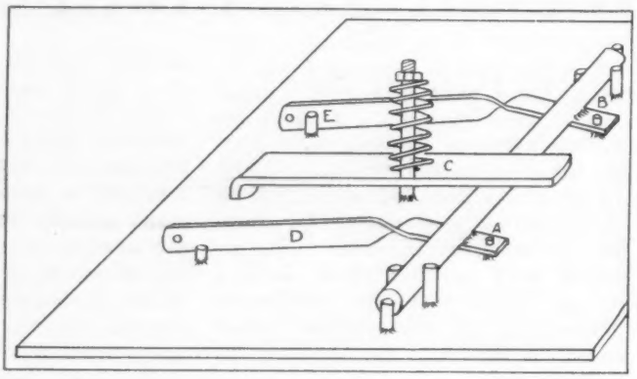


Fig. 5—Jig for holding members while welding underslung chassis for perambulator. Bolt holes "A" and "B" fit over guide pins

Weld Spring Assemblies

A third type of chassis is shown in Fig. 7. The spring members are bent cold in a special die and are joined together by means of arc welding. To facilitate the weld the special fixture shown in Fig. 6 has been devised. The plate with the slots for holding the spring steel is clamped sideways on the table. By means of this device one operator and an assistant can make from 160 to 180 welds per hour.

After the two spring members are welded together as shown in Fig. 6, the next operation is to weld the axles to two spring assemblies. The jig for handling this work is shown in Fig. 7. It consists of a sheet metal table mounted so that it can revolve, and carries at each corner a slotted holder in which the ends of the axles rest. Position blocks permit the operator to place the two spring assemblies in their proper position. The axles are kept firmly in contact with the springs by means of a crosspiece depressed by coil spring which is shown clearly in the illustration. This jig, mounted on a turn table, makes it possible to weld 40 chassis an hour.

The same methods of welding that have proved advantageous in the manufacture of chassis for baby carriages likewise have proved highly satisfactory in the manufacture of folding cars and toys. In the case of the former, the original practice in my shop was to rivet the axles to vertical members of the carriage with the help of a special malleable iron washer which kept the axles from turning.

At the present time the axles are welded to the vertical members before assembling the folding parts of the car. These vertical members or levers are of light rectangular section and are bent 90 degrees at the end. The bent parts are welded against the axles, a special jig being employed for this purpose. The jig consists of a sheet metal plate mounted so that it can revolve. Two slits in the table permit the levers to pass through so that the bent ends lie on top of the table. The vertical position of the levers is maintained by means of guides under the table. The axle to be welded is placed between guide pins so that it rests immediately over the bent ends of the levers. Spring levers, similar to those described in connection with other jigs, hold the axle firmly against the bent ends of the levers. Here again the use of the jig permits an operator and an assistant to handle two tables. About 80 as-

Show Methods Employed in Holland Plant

THAT facilities for holding members in position while welding constitute one of the important factors in the application of welding to production is strikingly illustrated in the accompanying article, which is abstracted from a paper submitted in the recent contest conducted by the American Society of Mechanical Engineers for the Lincoln Electric Co., Cleveland, donor of the prizes.

The author, H. C. Ten Horn, Nijmegen, Holland, operates a plant engaged in the manufacture of baby carriages and toys. The application of arc welding to the fabrication of pram chassis will interest American manufacturers in view of the ingenious jigs and fixtures which have been the locality of this Holland establishment, skilled workmen receive 80 Dutch cents (32 American cents) per hour. This figure will permit American manufacturers to compare the output per operator in Mr. Ten Horn's establishment with that of men on similar work in the United States.

—THE EDITORS.

Fig. 6—This fixture is for holding two spring pieces in contact for welding as shown

semblies an hour can be welded by this method.

Another method of connecting axles to vertical members of the folding carriage once used by the company consisted of drilling a hole in the vertical member, inserting the axle in the hole and then applying a cotter pin to keep the axle from sliding sideways in the hole. This construction has since been replaced by welding. A jig similar to that just described is used.

In December, 1927, the application of arc welding in the plant had reached the stage where it was possible to announce that in 1928 the entire output would be fabricated by this method. The author does not believe any other manufacturer of baby carriages in the world can yet make the same claim.

According to a careful analysis it appears that the production costs for five types of chassis fabricated by the old method ranged from 33 to 51 cents each. Corresponding costs for arc welding ranged from 23 to 40 cents per chassis. The calculated saving ranges from 7 to 11 cents for each chassis. The author expects that if the output in 1928 is the same as it was in 1927, the total saving to be credited to arc welding will be $4910.

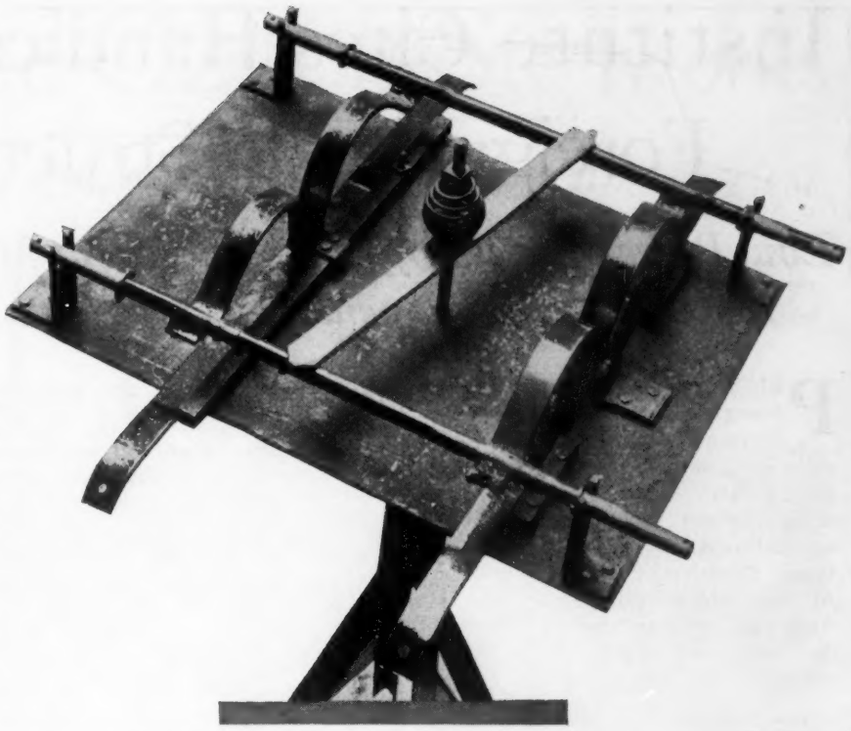


Fig. 7—A jig for holding axles and side spring assemblies in position for welding. Pairs of springs previously had been joined as shown in Fig 6

Get Less Out of Coal

Value of by-products and of coke, including breeze, per ton of coal consumed in by-product plants in the United States in 1927 was $8.95, compared with $9.17 in 1926, $8.86 in 1925 and $9.27 in 1924. The postwar record was $10.33 in 1923. In 1927 an average ton of coal charged in by-product ovens yielded 1388 pounds of coke, 8.6 gallons of tar, 22.7 pounds of ammonium sulphate, 2.9 gallons of light oil and 11,100 cubic feet of gas, according to the bureau of mines.

Will Speak at Meeting

The American Society of Mechanical Engineers will hold a New England industries meeting at Boston Oct. 1-3. This will include an education and training session, a materials handling session, an applied mechanics session and a railroad session. The speakers include C. K. Tripp, supervisor of apprentices at the General Electric Co., Lyon, Mass.; Walter S. Berry, director of training, Scovill Mfg. Co., Waterbury, Conn.; D. W. Coe, vice president and general sales manager, Canadian Mead-Morrison Co. Ltd., Montreal; A. Willgoos, chief engineer, Pratt & Whitney Aircraft Corp., Hartford, Conn.; F. W. Mosinger, Norman-Hoffman Bearing Corp., Stamford, Conn.; J. P. Don Hartog, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.; William J. Fortuno, vice president, National Shawmut bank, Boston; Jerome H. George, vice president, Morgan Construction Co., Worcester, Mass.; and A. M. Wahl, research department, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

Arranges Visit to Coast

As an outcome of consideration given by the executive committee of the American Society for Testing Materials to the development of the society interests on the Pacific Coast and the establishment of closer contacts with far western members, especially in relation to the investigative and standardization work of the society, C. L. Warwick, secretary-treasurer of the society, will visit in October the principal industrial and engineering centers of the Pacific Coast for the purpose of discussing these matters at first hand with the members of that section. Some means will be sought to provide for closer co-ordination of western members in the activities of the society, particularly in committee work.

Plans Inspection Trip

Members of the chamber of commerce of Pittsburgh, Allegheny River Improvement association, Pittsburgh Coal exchange, Railway Club of Pittsburgh, Traffic Club of Pittsburgh and Traffic and Transportation association of Pittsburgh and their friends will participate in a river and terminal inspection trip on the steamboat JULIA BELLE SWAIN of the Pennsylvania Transport Co. Thursday, Sept. 6. The party will leave at the foot of Smithfield street at 8:30 a. m. and will return at 5:30 p. m., visiting Clairton on the Monongahela river, Ambridge on the Ohio river and Aspinwall on the Allegheny river.

All Coke Production Is Down in July

July production of by-product coke was 3,911,082 net tons and of beehive coke 271,000 net tons, a total of 4,182,082 tons, according to the federal bureau of mines. Output of by-product coke in June was 3,961,268 tons and of beehive 302,000 tons, a total of 4,263,268 tons. Compared with July, 1927, by-product coke shows a moderate increase and beehive coke a corresponding decrease.

Of the by-product coke produced in July, ovens in Pennsylvania, the Buffalo district of Ohio and adjacent plants contributed 2,131,048 tons, Alabama and Tennessee 344,645 tons, Illinois, Indiana, Michigan and Missouri 922,233 tons and New England, New Jersey and New York east of Buffalo 343,785 tons. Pennsylvania and Ohio beehive ovens made 185,000 tons.

Institute Cites Handicaps in Using Foreign-Made Structural Steel

Low Price May Be Offset by Different Mill Practice Abroad—Inspection Recommended—Open-Hearth Steel Preferred

PRICE savings in the purchase of foreign-made structural steel are frequently nullified by the difficulty of making thorough inspection, the tendency abroad to utilize bessemer instead of open-hearth steel and different standards for webb and flange thickness, declares Charles F. Abbott, executive director of the American Institute of Steel Construction Inc., New York. In a formal statement Mr. Abbott says:

The institute has been repeatedly requested to express its opinion on the structural steel that is now being occasionally imported from abroad. We have always taken the stand that a technical association such as the Institute is not concerned in political matters, but it is most vitally interested in the quality of the material which goes into construction work. The Institute has evolved standard specifications for steel construction work which have been adopted with full confidence of their value by practically every city in the United States. These standards will not work unless the steel used measures up to the high quality specified.

Under the specification for structural steel for buildings of the American Society for Testing Materials, which the American Institute of Steel Construction has incorporated as a part of its standard specification for structural steel for buildings, it is stipulated that the steel used shall meet certain requirements. If the material passes these tests it may be made by either the bessemer or the open-hearth process. Bessemer steel is not so uniform in quality and we realize that only when the steel is made by the open-hearth process can we be fully assured that it will meet the high standards required.

Inasmuch as most of the imported structural steel is produced by the bessemer process a word of caution is issued to building owners in the United States. Foreign steel produced by the bessemer process should be subjected to the most rigid tests before it is incorporated in any American structure. Aside from the chemical structure of the foreign material it not infrequently happens that its geometric proportions also make it inferior for American practice. Our 12-inch beams have a certain desirable flange width, and their webs a specific thickness, with metal so disposed as to give the highest efficiency. On the other hand, the European product has less metal in the flange, which makes it easier to roll but less efficient per pound of steel. In the United States the highest uniform quality of steel is used and, no matter what mill may make the beam, it is produced according to known standard specifications. It is rigidly inspected before it leaves the mill to determine whether or not it meets the necessary requirements.

It will be wise for steel contractors not to look for price savings in the purchase of foreign-made structural steel, for in most cases nothing is gained thereby. Should a consignment of steel reach here and be found impractical for use, much time is lost by replacing that shipment by the domestic product. We have today word from Miami, Fla., that construction work on the N. W. Twelfth avenue bridge over the Miami river is held up because the steel for the structure was purchased in Europe. Owing to a strike, the shipment still is held in a Belgian port. The contractors on this bridge would have completed their work last May 15, but for this delay in receiving the steel.

Not all losses are incident to delays in delivery, when a contract is based upon foreign steel. Some contracts in Brooklyn, N. Y., were held up because the foreign steel did not measure up to specifications and American material was substituted. That action was taken up as a result of an inspection instituted by Albert E. Klienert, building superintendent of Brooklyn.

Mr. Klienert is the author of the statement that he has found imported structural steel ten per cent weaker than domestic structural steel. Europe does not find it necessary to make structural steel to American standards, for they usually construct buildings not over five or six stories in height where strength of material is not so important.

Domestic steel manufacturers are fully aware of the extreme importance of flawless steel in construction work and they maintain the necessary high standards in the production of this steel. They make and record the tests made on each melt, which record can be compared and checked against the finished steel from each melt, because every piece of finished steel is indelibly stamped with the manufacturer's name and the melt number.

It is generally impracticable to obtain such a record on steel imported from abroad. Tests made after its delivery are inadequate. In May of this year certain steel reported to have been imported was subjected to test at Columbia university. The results of that test were not conclusive, and were so reported by building inspectors, for they established only the value of the pieces actually tested and failed to connect them with all the imported steel in question.

The American Institute of Steel Construction Inc., is not opposed to imported steel because it is foreign made, but it is opposed to anything that tends to lower American standards. If foreign steel is to be imported for structures here it should be subjected to the same rigid tests at the mill to which we subject our domestic product, and when it fails to meet those requirements its use in buildings and bridges should be prohibited.

Diesel Engine Research

A committee of 15 men has been named by the American Society of Mechanical Engineers to develop standard fuel oil specifications for diesel engines. This is in co-operation with the Pennsylvania State College under the direction of Prof. P. H. Schweitzer. Those attending the first committee meeting were: E. J. Kates, consulting engineer, and chairman of the division; L. H. Morrison, editorial staff of *Power* and secretary of the division; H. A. Pratt, manager, oil and gas engineering department, Ingersoll-Rand Co., Chicago; E. Nibbs, chief engineer, New London Ship & Engine Co., New London, Conn.; J. W. Morton, formerly in charge of diesel department American Brown Boveri Co., New York; W. H. Butler, technical advisor on diesel oil sales, Standard Oil Co. of New Jersey; and C. G. Worthington, research assistant for the American Society of Mechanical Engineers.

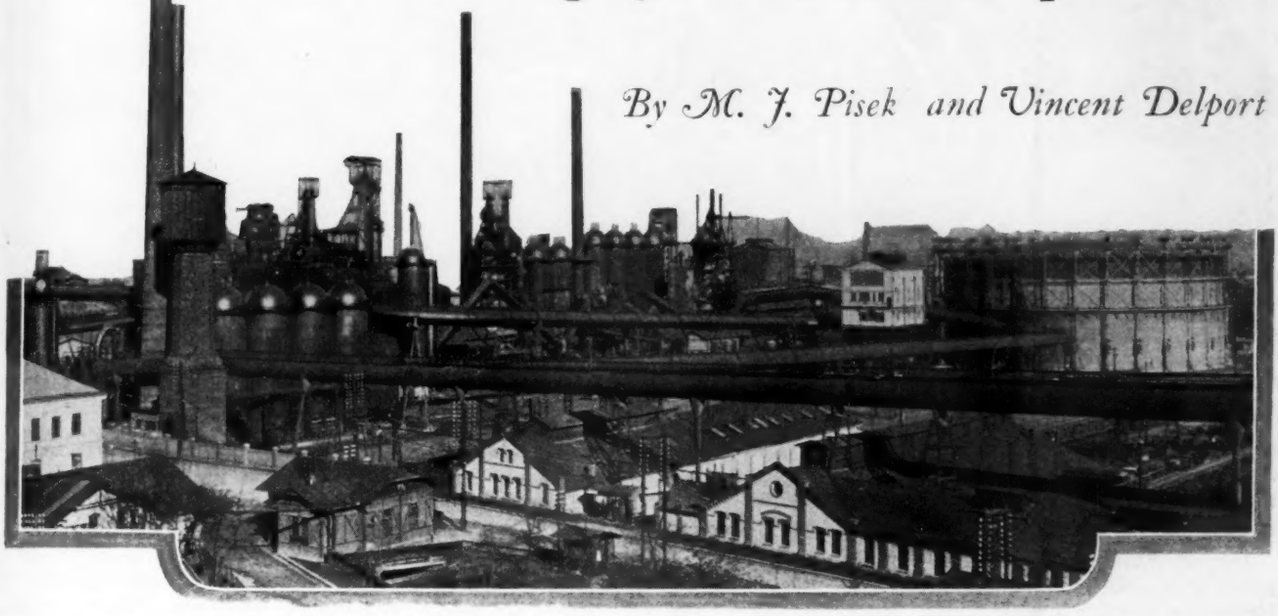
Less Freight Handled

Volume of freight traffic handled by the Class I railroads in the first six months of 1928 was 223,845,340,000 net ton miles, the bureau of railway economics states. This was a decrease of 10,158,687,000 net ton miles or 4.3 per cent under the corresponding period in 1927 as well as a decrease of 3,289,873,000 net ton miles or 1.4 per cent under the same period in 1926.

Self-contained CZECH Steelworks

Ranks Among Continental Europe's Best

By M. J. Pisek and Vincent Delport



Blast furnace at the Witkowitz works. The 50,000-cubic foot gasometer maintains a constant gas pressure at various points of utilization

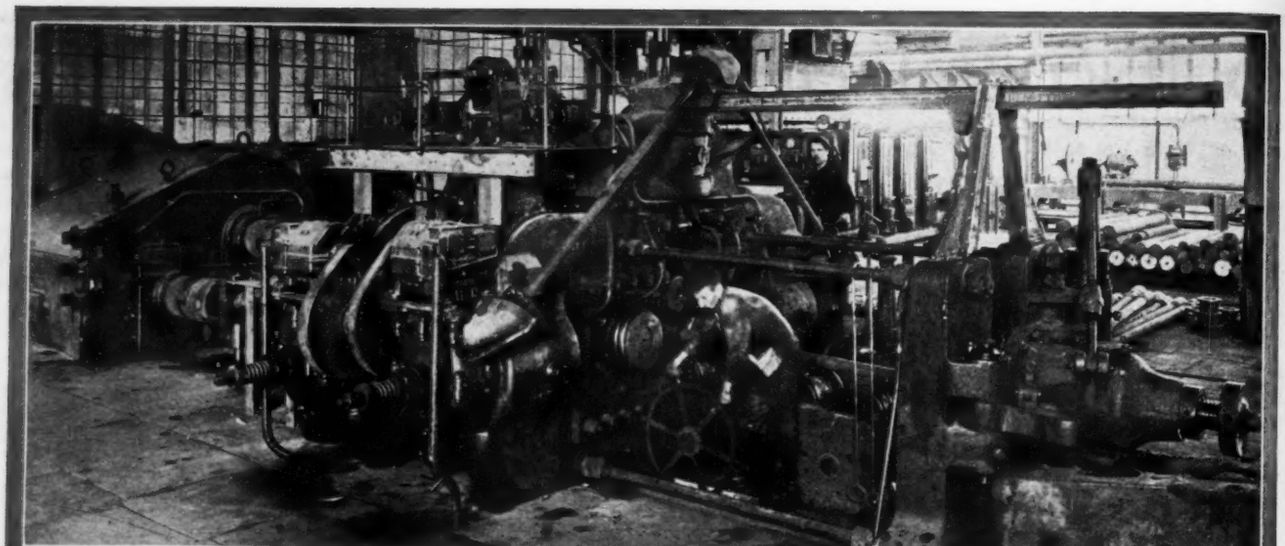
IN THE west portion of the rolling mill department of the Witkowitz works is the merchant bar mill composed of five 3-high trains. Three of these trains are preceded each by a Morgan six-stand roughing train. The first Morgan continuous train rolls square bars of 100, 80 or 65 millimeters (3.94, 3.15 or 2.56 inches) and 20 meters (65.62 feet) maximum length. The train following this Morgan mill is composed of three 3-high stands and one 2-high finishing stand. This mill produces rounds and squares ranging from 35 to 60 millimeters (1.38 to 2.36 inches), beams from 60 to 100 millimeters (2.36 to 3.94 inches), channels from 40 to 80 millimeters (1.57 to 3.15 inches), rails up to 10 kilos per meter (20 pounds per yard), and flat bars ranging from 35 to 120 millimeters (1.38 to 4.72 inches) in width.

The second Morgan train is composed of six stands, and rolls bars 80 millimeters (3.15 inches) square coming from the first Morgan train into squares of 31 or 44 millimeters (1.22 or 1.73 inches), or rectangular bars 16 x 75 millimeters (0.63 x 2.95 inches). The following 3-high train of six stands produces rounds and squares from 15.5 to 32 millimeters (0.61 to 1.26 inches) and flat bars 20 x 60 millimeters (0.79 x 2.36 inches). The third Morgan train has 280-millimeter (11.02-inch) rolls. Bars coming from the second Morgan train are reduced to squares of 21.14 or 11 millimeters (0.83 or 0.43 inches). The following 3-high train reduces these bars to rounds and squares ranging from 6 to 16 millimeters (0.24 to 0.63 inches), and flat bars of 5 to 10 millimeters (0.20 to 0.39 inches) thick and 10 to 26 millimeters (0.39 to 1.02 inches) wide.

Hoops and bands are rolled in a Klungel mill composed of a roughing train and a finishing train. The roughing train is composed of two 3-high stands and the finishing train of five stands. The fifth mill is a universal 3-high train. This mill is used to roll flat bars over 3 millimeters (0.12 inches) in thickness, from 60 to 300 millimeters (2.36 to 11.81 inches) in width, and a maximum length of 40 meters (131 feet). Connected with the rolling mills are a shop for the working up of railroad switches, a repair shop, a shop for turning the rolls, an electric power plant, and laboratories.

Second and concluding article describing the new Witkowitz works in Czecho-Slovakia. The first appeared in the Aug. 23 issue of Iron Trade Review.

The Frystat rolling mills were acquired in 1924. They are composed of three mills, for rolling hoops and bands, one cold rolling mill, and one sheet mill, all electrically driven. Mill No. I comprises three finishing stands on which are produced bands and hoops of a width ranging from 30 to 107 millimeters (1.18 to 4.22 inches). The first train is composed of a roughing 3-high stand, the second train of two 3-high stands and the third of eight finishing stands. The output varies according to the width of the product from 30 to 80 metric tons per 8-hour shift. This installation is completed by a Sack winding machine and by a cooling bed 52 meters long. Mill No. II at present is only composed of a cogging mill with two stands where billets and sheet bars are rolled before going to the other mills. The finishing train, comprising four stands, is being reconstructed. It will be used for rolling bands up to 200 millimeters (7.9 inches) in width. Its capacity will range from 80 to 100 tons in eight hours. Mill No. III is for hoops, ranging from 10 to 60 millimeters (0.39 to 2.36 inches) in width. It comprises a cogging mill of two 3-high stands, and a finishing mill with eight stands. The capacity of the three mills, I, II and III, is 100,000 metric tons of hoops and bands per year. The cold rolling mill has a monthly capacity of 900 tons; it is composed of 22 stands



Piercing mill in the seamless tubemaking department. This division has a capacity of 46 tons of large tubes for each 8-hour working turn

and produces strip of widths ranging from 8 to 250 millimeters (0.31 to 9.84 inches) and from 0.1 to 2.5 millimeters (0.0039 to 0.097-inch)

The Frystat sheet mill is composed of a cogging mill, three finishing trains, and a polishing stand. Reheating is effected in a sheet bar furnace and three double furnaces fired with producer gas. The excess gas coming from the furnaces is used to heat a Babcock and Wilcox boiler which produces sufficient steam for the requirements of the sheet mill and the pickling shop. This shop, which adjoins the rolling mills, is equipped with a double vat with a tilting device and an automatic drying system. This department is completed by a large fitting shop and a warehouse. The capacity of the sheet mill is 15,000 metric tons annually. The sheets produced range from 500 to 1300 millimeters (19.7 to 51 inches) in width, and from 0.3 to 3 millimeters (0.012 to 0.12-inch) in thickness. The output includes commercial, electrical, and special sheets. A large laboratory is fitted for measuring and checking the electromagnetic properties of the electrical sheets produced. The aggregate capacity of the Frystat mills is about 115,000 metric tons annually. The Frystat plant also contains a steelworks with four open-hearth furnaces. These are idle for the time being and are kept as a reserve. The rolling mills are served with slabs, billets, and bars coming from the new Witkowitz mills.

The tube mills at the Witkowitz works produce welded and seamless tubes of all sizes and for all uses. In the welded tube section is a double drawing bench, a gas-fired furnace, and a fitting shop; welding is done by water gas or electrically. At present only buttwelded tubes from ⅛ to 1 inch are made. The manufacture of lapwelded tubes from 2½ to 14 inches recently has been abandoned. Seamless tubes are made with a Stiefel mill which rolls tubes from 57 to 133 millimeters (2.24 to 5.24 inches) outside diameter. Its capacity is 25 tons per eight hours, Tubes under 2 inches diameter are drawn hot or cold. The Mannesmann department for large tubes, composed of one Mannesmann mill and one pilger mill, produces tubes from 5¼ to 12½ inches outside diameter; its capacity is 46 tons in eight hours. Another Mannesmann plant produces tubes from 2 to 4½ inches at a rate of 15 tons per shift. A special department is equipped for making and welding steel casks or drums. Welding is effected with water gas. In this department also are welded various goods such as cans, tubes and fittings for various uses and pressures, boilers, fire boxes, steam and gas receivers, and a special section for Fox and Morrison corrugated tubes equipped with the most modern machinery. The tube works as described give employment to 2200 men.

Steel Castings Produced

In the steel foundry there are three open-hearth furnaces with a capacity ranging from 35 to 40 tons, one 15-ton open-hearth furnace, and three electric furnaces of 1, 2 and 6 tons respectively. The open-hearth furnaces are in a bay 223 meters (732 feet) long. They have a basic lining and are fired with a mixture of coke oven and producer gas coming from nine producers of the Huth-Roettger system. The furnaces are served by two cranes. The two 35-ton furnaces and the 15-ton furnace produce together about 100,000 tons of steel a year. The waste heat of the three large furnaces is used in conjunction with three Garbe boilers which produce 500 kilos (1102 pounds) of steam per ton of steel. This steam is utilized in other sections of the steel foundry. The steel furnaces produce basic open-hearth steel and alloys of steel with manganese, nickel, nickel-chrome-vanadium, chrome, etc. Up to 1918 steel for small castings was melted in crucibles, but since then electric furnaces have been used. The molding section has an annual output of castings of about 11,000 tons. Castings ranging from the smallest weights up to 80 tons are produced, especially for ships and large machinery.

Following the steel foundry is the forge department; it is divided into several sections: One section for forgings, tires, wheels and shells, one sheet stamping section, and one armor plate section. It contains four hydraulic and steam presses of from 800 to 4500 tons, and nine steam-hammers with tups weighing from 1.2 to 20 tons. The area occupied for the manufacture of tires and wheels contains two tire mills, one mill for wheels, two 6-ton steam-hammers, one steam forging press of 1500 tons, and one hydraulic press of 800 tons. The 24 reheating furnaces are fired by coke oven gas. Of these furnaces, four furnish sufficient waste heat to provide the steam used in the 4500-ton steam forging press. These sections produce various parts for machinery, shafts, tires, wheels, high-pressure boilers, etc. Their an-

nual capacity is 80,000 tons. The area for making shells contains two hydraulic presses of 1000 and 360 tons respectively, one piercing press of 750 tons, and six hydraulic presses ranging from 100 to 360 tons.

The plate and sheet stamping section is composed of two bays which house five air-operated stamping presses ranging from 200 to 1200 tons. The capacity of this section is 6000 tons per year, and its output consists of boiler ends, fireboxes, especially Garbe fireboxes made in one piece. The armor plate section comprises 11 furnaces, two installations for water quenching, two large oil vats, two presses of 8000 tons and 10,000 tons respectively, and 74 machine tools. A finishing department contains 210 machine tools. Finally, there is a machinery and accessories department which includes the boilers, air compressors, pumps, and the repair section.

Three additional shops are: one shop for assembling steelwork, a boiler shop, and a mechanical workshop.The steel-assembling shop, reconstructed in 1915, is said to be the largest in Czecho-Slovakia and one of the largest in Europe. In this shop are assembled bridges and parts of various steel buildings. The boiler shop has an annual output of 15,000 tons. The output includes feed water heaters, tubular boilers standing pressures up to 40 atmospheres and Garbe vertical boilers up to 35 atmospheres. Two of these boilers of 600 square meters (6458 square feet) of heating surface were supplied to the electric power house of Ervenice. Eight Garbe boilers of 750 square meters (8073 square feet) and 18 atmospheres, with feed water heaters, were supplied to the Satura power house of Moscow. The fuel used in this power house is compressed peat; the results of tests have given from 50 to 60 kilos of steam per square meter per hour with a total efficiency of 85 per cent. The manufacture of high-pressure Loffler boilers also has been undertaken. The first boiler of this type made gave 18 tons of steam per hour, at 120 atmospheres and superheated at 560 degrees Cent. It was made for one of the power houses.

Special boilers for utilizing lost heat also are constructed. Hearths are manufactured for the utilization of powdered coal. A gasometer of 50,000 cubic meters, erected in the works, was completed in the boiler shop; another of 75,000 cubic meters was made for the Prague gasworks. Equipment for iron and steel plants also is manufactured here. Adjoining the boiler shop is a shop for making screws, rivets, etc. The mechanical workshop dates several years back, but is equipped with modern machines. It is divided into various sections: heavy-duty machines, light machines, gear-making machinery, a tool shop, and a forge. In this shop are constructed and assembled mining machinery, steam and electrically driven,

Talbot-type open-hearth furnaces of 180 tons capacity each. The steelworks includes five tilting and three stationary basic furnaces. In the inset is shown the electrically-driven blooming mill which will handle 1500 tons of ingots daily

gas engines, blowers, compressors, locomotives. It has supplied most of the hauling machinery for the Ostrava-Karvina mines.

Refractory bricks are manufactured at the works. These are made of different sizes and shapes and are of fire-clay, magnesite or silica. The output is 54,000 tons a year. A laboratory is adjoined, for the study of refractory materials. Part of the output is disposed on the market, but the larger proportion is used in the works. There are 145 kilometers of railroad lines throughout the works which are connected with the public railroad by four junctions. In one year as much as 445,000 freight cars and 5,900,000 tons of goods were handled. There are 30 locomotives, 23 passenger cars, and 1167 freight cars. Seven railroad depots are distributed throughout the plant.

Since the World war the Witkowitz works have been reconstructed with a view to the complete elimination of waste by the use of waste heat and the rational utilization of coal. The use of blast furnace and coke oven gas largely has eliminated the use of coal in gas producers. In 24 hours there are 500,000 cubic meters of coke oven gas and 2,000,000 cubic meters of blast furnace gas available. A 50,000 cubic meter gasometer is used to regulate the flow of gas which is thus obtained at the various points of utilization at a constant pressure. This results in a great economy of gas consumption. Of the total output of gas, 50 per cent is available for producing electrical energy. The Witkowitz and the Sophie blast furnaces are connected by a pipe 1.2 kilometers (¾-mile) long and 2500 millimeters (98 inches) in diameter for gas, and by another pipe of 1600 millimeters (63 inches) diameter for air. As a result, the supply is independent of whichever furnaces are in operation.

The excess gas from two batteries of coke ovens travels in three pipes of a diameter of 900, 500, and 450 millimeters (35.43, 19.68, and 17.72 inches) respectively to a 5000 cubic meter gasometer, thence to the various furnaces through 13 kilometers (8 miles) of pipe. Waste heat is utilized under eight Garbe and four Durr-Gehre boilers.

Declares Stability of Business Is Without Parallel in History

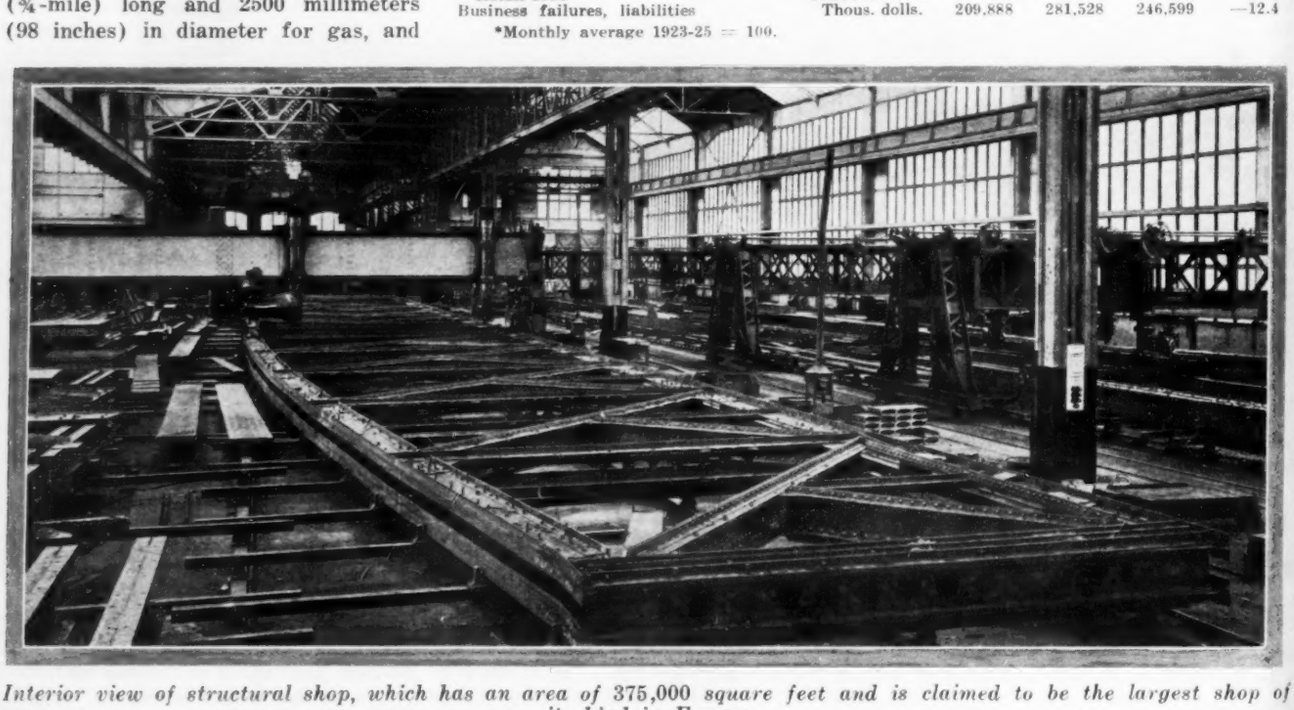
THE nation's business in the first half of 1928 exhibited a continuance of the activity and progress which has now lasted for a sufficient number of years to mark a general stability unparalleled in the economic history of the United States or any other important industrial country, states the department of commerce, Washington. The only important industries which are lagging behind the national pace are textiles in the manufacturing group, and agriculture, and coal among the basic raw material industries. In the attached table is afforded a comparison of important indicators of business for the first half of 1928 with 1927 and 1926.

BUSINESS INDICATORS

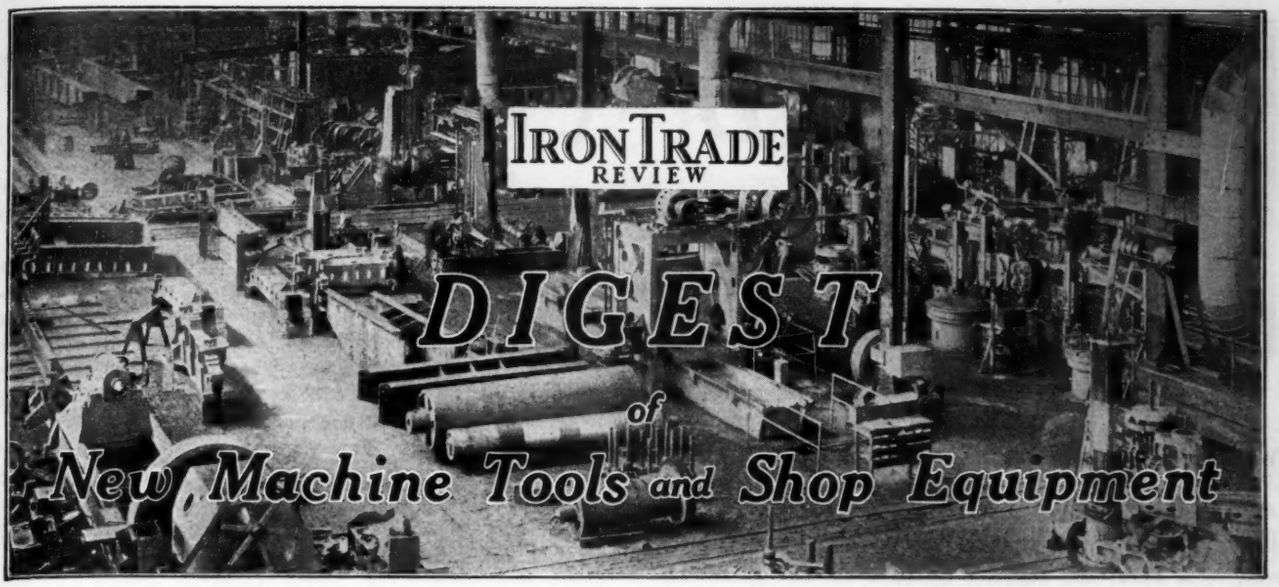
Six Months, January through June

	Unit of measure	1926	1927	1928	% inc. or over 1927 dec. 1928
Manufacturing production*	Index number	109	110	111	+ 0.9
Bldg. contracts, 36 states:					
Value	Thous. dolls.	2,989,867	3,072,729	3,317,547	+ 8.0
Square feet	Thous. sq. ft.	433,918	411,276	483,560	+17.6
Automobile production:					
Passenger	No. of cars	2,099,381	1,802,620	1,965,727	+ 9.0
Trucks	No. of cars	259,204	266,354	236,153	—11.3
Mail-order sales, 2 houses	Thous. dolls.	221,839	221,963	242,666	+ 9.3
Check payments outside N. Y. City	Mill. dolls.	133,589	139,530	151,209	+ 9.2
Electric-power production	Mill. kw. hrs.	35,547	39,411	42,359	+ 7.5
Silk consumption	Bales	237,043	275,060	288,786	+ 5.0
Shoe production	Thous. pairs	154,307	165,074	166,016	+ 0.6
Steel-ingot production	Thous. long tons	24,154	23,807	24,793	+ 4.1
New paid for life insurance	Thous. dolls	5,667,937	5,818,878	6,241,292	+ 7.3
N. Y. State savings bank deposits	Mill. dolls.	3,727	4,036	4,301	+ 6.6
Cotton consumption	Bales	3,395,990	3,793,904	3,350,978	—11.7
Wool consumption	Thous. lb.	240,449	279,904	264,216	— 5.6
Petroleum production	Thous. bbls.	360,735	438,056	435,288	— 0.6
Freight-car loadings	Cars	24,267,591	25,521,040	23,539,858	— 7.8
Copper production	Short tons	433,198	426,988	422,623	— 1.0
Factory employment*	Index number	99	96	91	— 5.2
Prices*					
Farm (to producers)	Index number	102	92	101	+ 9.8
Wholesale, general	Index number	100.3	93.9	96.2	+ 2.4
Wholesale, nonagricultural	Index number	100.8	94.7	94.8	+ 0.1
Cost of living	Index number	103	100	99	— 1.0
Retail food	Index number	108	104	102	— 1.9
Business failures, liabilities	Thous. dolls.	209,888	281,528	246,599	—12.4

*Monthly average 1923-25 = 100.



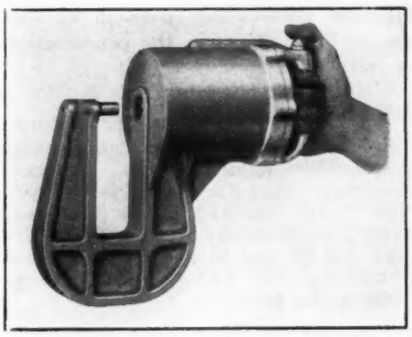
Interior view of structural shop, which has an area of 375,000 square feet and is claimed to be the largest shop of its kind in Europe



Copper Alloy Is Used in Electrode Holder

No. 220

Fusion Welding Corp., 103rd street and Torrence avenue, Chicago, recently has brought out a new electrode holder for metallic arc welding designed to minimize overheating of electrodes. The insertion of the electrode in this new holder automatically scrapes off any insulating material that may be present on the welding rod and thus provides a firm contact which is said to be necessary to overcome electrode overheating. The holder has no springs or removing parts; the jaws are made of a special copper alloy, the same as that which is used to support and attach trolley wires to the cross wires. This alloy is said to resist arcing which is a cause of damage to electrode holders. Spattered drops of electrode metal will not stick to the copper alloy, it is claimed. Stubs of old electrodes are ejected automatically by inserting a new electrode in the holder.



No. 221—Portable pneumatic riveter

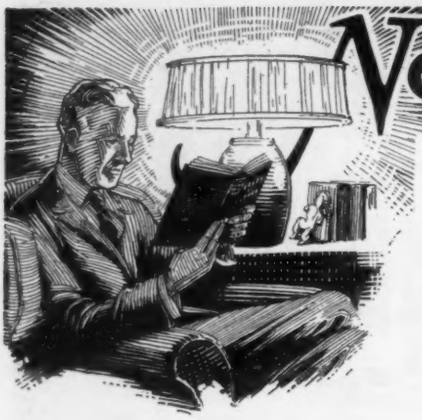
Portable Riveter Exerts One-Ton Pressure

No. 221

Hanna Engineering Works, 1765 Elston avenue, Chicago, has placed on the market a portable pneumatic riveter exerting a pressure of 1 ton on the dies and weighing only 15 pounds. The riveter, shown in the accompanying illustration, has a 5-inch depth of throat or reach, a 2-inch gap and a 1-inch die stroke. It is capable of driving tubular bronze or steel rivets up to 3/16 inch in diameter and is said to be particularly adaptable to the riveting of automobile hoods, instrument panels, bodies and similar assembly work.

Iron Trade Review's Calendar of New Equipment

No.	Item	Builder	Comment	Date Described
189.	Riveting machine	Hanna Engineering Works	Adjustable for use on auto frames	Aug. 2
190.	Pumping unit	American Manganese Steel Co.	Portable; pump parts of manganese steel	Aug. 2
191.	Motor control switch	General Electric Co.	High interrupting capacity; minimum arcing	Aug. 2
192.	Coiler and slitting machine	Torrington Mfg. Co.	Slits and coils wide strips	Aug. 2
193.	Crawler crane	H. D. Conkey & Co.	Gasoline or electric operated	Aug. 2
194.	Universal jig	Modern Machine Tool Co.	Slotted stop and bushing plates	Aug. 2
195.	Boring and milling machine	Joseph T. Ryerson & Son Inc.	Handles both small and bulky work	Aug. 2
196.	Monorail trolley and hoist	Edgar E. Brosius Inc.	Entirely of steel; worm drive	Aug. 2
197.	Regulator	Alexander Milburn Co.	Reduces gas pressures in welding	Aug. 9
198.	Belt conveyor idler	Fairfield Engineering Co.	Interchangeable rollers	Aug. 9
199.	Portable cooling fan	Peerless Electric Co.	For industrial use; 18-inch diameter	Aug. 9
200.	Welding torch	Air Reduction Sales Co.	Light size; for thin-metal welding	Aug. 9
201.	Dinkey controller	Electric Controller & Mfg. Co.	Welded steel frame; improved ventilation	Aug. 9
202.	Radiation pyrometer	Colonial Supply Co.	Pocket size; high sensitivity	Aug. 9
203.	Air motor hoist	Ingersoll-Rand Co.	20,000-pound capacity; equipped with safety brake	Aug. 9
204.	Metal punch	Whitney Metal Tool Co.	Roller-bearing; lever-type	Aug. 9
205.	King bolt pilot	Scully Steel & Iron Co.	For use as extension on expansion reamers	Aug. 9
206.	Power presses	American Can Co.	High production; six engaging point clutch	Aug. 9
207.	Grinder and snagger	United States Electrical Tool Co.	High speeds; direct or alternating current	Aug. 16
208.	Control panel	General Electric Co.	Used with motor-generator battery charger	Aug. 16
209.	Signal relay	General Electric Co.	Warns of power failure or voltage drop	Aug. 16
210.	Journal turning lathe	Niles Tool Works Co.	For double quartering and crankpin turning	Aug. 16
211.	Cable clip	Eureka Metal Products Corp.	Two fully grooved jaws	Aug. 16
212.	Ladle gearing	Whiting Corp.	Ball bearings; cast-steel housing	Aug. 16
213.	Connecting rod borer	Niles Tool Works Co.	For boring and facing operations	Aug. 16
214.	Electric motor	Allis-Chalmers Mfg. Co.	Totally enclosed and fan-cooled	Aug. 23
215.	Car wheel lathe	Niles Tool Woks Co.	Improved method of chucking	Aug. 23
216.	Disk sander	United States Electrical Tool Co.	Portable electric; ball bearing construction	Aug. 23
217.	Vertical-spindle grinder	Hisey-Wolf Machine Co.	Vertical, horizontal and double slide adjustments	Aug. 23
218.	Electric handsaw	Wappat Gear Works Inc.	Equipped with safety guard; 2-inch cutting capacity	Aug. 23
219.	Strip coiler	D. A. Clark Co.	Straight-line drive arrangement	Aug. 23
220.	Electrode holder	Fusion Welding Corp.	Minimizes arcing and overheating	Aug. 30
221.	Pneumatic riveter	Hanna Engineering Works	Exerts 1-ton pressure; weighs 15 pounds	Aug. 30



New Books Worth Reading

Wage Trends Charted

Wages in the United States, 1914-1927, cloth, 168 pages, 6 x 8 inches, published by the National Industrial Conference board Inc., 247 Park avenue, New York, and supplied by IRON TRADE REVIEW for $2.50.

This volume is the fifteenth of a series of publications in which the National Industrial Conference board presents the results of its investigations into wages, hours of work and employment in American industries. Originally these studies were confined to manufacturing; they were gradually extended to include other branches of American economic life. The data now include public utilities, anthracite mining, building trades, Class I railroads and agriculture. The findings of recent years are related to prewar conditions and thus a review is given of the development of wages and hours of work during the entire period from 1914 to January 1928. Much of the information issued by the board from month to month is contained in this volume. The book contains many charts and tables.

* * *

Metals In Aviation

Progress de la Metallurgie et Leur Influence sur l'Aeronautique by Gaetan Py; paper covers, 6¼″ x 9½″, 60 pages. Supplied by IRON TRADE REVIEW for 40 cents and in Europe by Penton Publishing Co., Caxton House, London, for 5 francs.

Interest aroused in recent years in aeronautical construction has resulted in a considerable development in research and practical results in light metals and alloys based on aluminum. M. Py, who for a long time was associated with a leading firm of manufacturers of light alloys in France, has become a specialist on the subject and has presented several papers before the Societe des Ingenieurs Civils de France. The author has revised these papers and edited them in the form of a book which should be of great assistance to those who are involved in the study and manufacture of airplanes.

The first chapter of the book deals with general progress in metallurgy. It describes various methods of studying the properties of metals and alloys, such as dilatometric measurement, X-rays, etc. It deals with recent studies on the physical properties of metals at high temperatures and the heat-treatment of light alloys. Before dealing with the various alloys used in airplane construction, the author devotes a few pages to the use of steel.

Chapter II deals with the various methods of transforming or working up the metals, and reviews founding, drawing, rolling, forging, and heat-treatments. The second section of this chapter deals with machining, assembling, and protective coatings.

Chapter III is specially devoted to the use of these metals and alloys in airplane construction.

This book can be regarded as a convenient work of reference covering the present-day position of the use of light alloys in the construction of airplanes.

* * *

Standards of Electrical Devices

Nema Handbook of Apparatus Standards, published by National Electrical Manufacturers association, New York; 348 pages, 6 x 9 inches; paper; supplied by IRON TRADE REVIEW for $3 and in Europe by Penton Publishing Co. Ltd., Caxton House, London, for 15s, net.

Previous to this, the seventeenth edition, this publication had been known as the Electric Power Club Handbook of Apparatus Standards. It includes test, performance and manufacturing standards of electrical supplies. Each section is complete, covering all the rules relating to each product in a group.

A chapter on business policies discusses keeping tools and patterns to supply spare parts. Service factors are given to apply to application and selection of rotating apparatus. American standard connections and terminal markings of meters, generators, converters and transformers are given in full. Other data of value to the industry are included.

* * *

World Trade Summarized

Foreign Trade in 1928, published by the National Foreign Trade council, New York; cloth, supplied by IRON TRADE REVIEW for $2.50 and in Europe by Penton Publishing Co. Ltd., Caxton House, London, for 12s 6d, net.

The proceedings of the fifteenth national foreign trade convention at Houston, Tex., make up this volume. It presents a comprehensive view of the present situation in foreign trade and its development.

Export merchandising practice in its nine principal phases was discussed in sessions open to the entire council, instead of the usual group gathering. These are comprehensively indexed, as is the discussion from the floor.

This is the best presentation of the best thought of American exporters available to those seeking knowledge of foreign trade.

* * *

The Other Fellow's Business

Representative Industries in the United States, cloth, 702 pages, 5½ x 8½ inches; published by Henry Holt & Co., New York, and supplied by IRON TRADE REVIEW for $5, and in Europe by Penton Publishing Co. Ltd., Caxton House, London for £1 5s, net.

In conformity with realization that business is a unit and that diverse industries are inter-related, this volume presents views of some 20 representative industries. They are written by leaders in the respective industries and are detailed and authoritative. In each chapter is given a history of the industry, conditions surrounding its origin in the United States, its relation to American industry as a whole, growth of its domestic trade, improvements in technological processes, growth of its export business, discussion of its labor problems, history of large consolidations and any special developments peculiar to the individual industries.

The volume is editied by H. T. Warshow, comptroller for the National Lead Co. The various industries are covered by men who have helped bring about their development, who understand their processes and are an integral part of the development themselves. The theory of the volume is that the man who has spent his life in the business is best qualified to present a specific and detailed analysis of his own business.

The volume does not assume to cover all the important industries, but includes a representative selection of manufacturing industries and chapters on building and banking.

Industries covered include: Aluminum, automobile, banking, chemical, building, copper, cotton, electrical, iron and steel, lead, leather, meat-packing, lumber, paint, petroleum, railway equipment, rubber, water power, wool and zinc.

Editorials

Mixers Can Purify While Holding Power and Productivity Are Twins

Pig Iron Feels Impetus of Election

Nature Well Shields Manganese Ore

Mixer Awaits Metallurgist's Wand

MIXERS are a valuable adjunct to steelworks for obtaining steelmaking iron of a desirable composition and for storing the iron in a molten state against open-hearth requirements. A few decades ago a vessel with a holding capacity of 500 tons was considered modern; today a 1300-ton vessel is common in the American steel industry. As for the utility of the vessel, little advancement has been made. Yet the steelworks mixer affords the metallurgist an unusual opportunity to display his handiwork.

A certain amount of impurities could be removed by blanketing the mixer metal with a basic oxidizing slag, fluidity being secured by making fluorspar additions at intervals. An appreciable amount of silicon, sulphur, manganese and phosphorus could be removed depending upon the quality of slag maintained. The temperature of the metal would be little affected because of the reactions being endothermic. Moreover, the gas usually burned in the vessel would supply sufficient heat to slag the lime and oxides. On account of the low temperature at which the metal is held in the mixer the carbon in the iron would undergo little change until the metalloids previously mentioned are eliminated.

Such an arrangement would shorten basic open-hearth heats and at the same time reduce the amount of lime necessary to flux the furnace charge. Other advantages which would accrue from the preliminary purification of metal in the mixer are readily apparent to those in close touch with basic steelmaking. The plan suggests one of the avenues still open in the operating end for speeding up production and minimizing costs.

Business Defies Ancient Election Fear

"THREE times and out" should be enough for the ancient fear of a presidential election year blighting business in iron and steel. For three times in succession—1920, 1924 and 1928—election "uncertainty" has stepped to bat and threatened violent things, which did not happen. The old tradition of a national campaign upsetting business could be put down as a superstition, so far as iron and steel are concerned, if history did not sometimes repeat itself. For the present, however, cool logic and a national realization of the importance of a fair administration attitude toward business seems to have removed much of the psychological cause of depression.

Here in midsummer of a presidential year the market reports are filled with reassurance and optimism. Steel production for the year bids fair to establish a new record. Shipments of pig iron have continued for months at an exceptionally high rate; August tonnage is likely to be the largest of any month so far this year. A buying movement, still of moderate proportions, has been started for the balance of the year in the Middle West; large established consumers have no hesitancy in contracting for their needs.

The movement in pig iron is much like that in the presidential election year of 1924, large shipments during the summer, culminating in heavy buying just before and after the election. Summaries of the pig iron sales at that time in 1924 stated they were the largest "since 1920"—another presidential year. A great bulge in steel production ran almost parallel with the pig iron movement in 1924, and in 1920 steel output was at one of the highest points on record.

There must be a reason for this blitheful riding through the storms of a political campaign, and it probably is founded in the belief that national policies relating to business are so well established that business has little to fear.

Power Swells Individual Output

INDUSTRIES in which the amount of horsepower per wage earner exceeds the average also have an output per worker that is larger than the average. Those industries in which the

horsepower falls below the average produce less per worker than the average. This rule is not infallible, but so general in application that any one using mechanical equipment might pause and consider whether it has a special meaning for him.

All of 14 major industries in 1925 had an average of 4.27 horsepower per wage earner, and the value added by manufacture per wage earner was $3194. Six of the industries employed horsepower per worker in excess of the average, and in all instances except one the value by manufacture was greater than the average. The six industries are iron and steel, chemicals, stone, clay and glass, food and kindred products, paper and printing and rubber. Iron and steel had the largest horsepower per wage earner, 8.83. However, the value added by manufacture per wage earner was only $3204, and next to the smallest in the group of six industries. Chemicals employed nearly as much horsepower per worker as iron and steel, while the value added by manufacture per wage earner in the chemical industry was almost double that in iron and steel.

Eight major industries fell below the average in the use of horsepower per worker, these including metals and metal products, machinery, railroad repair shops and transportation equipment. However, the values added in metals and metal products, in machinery and transportation equipment were slightly above the average. In addition to the volume of horsepower, there is the factor of efficient use, and on the side of values there is to be considered the element of markets.

The value added by manufacture per wage earner in iron and steel was nearly the same as that for metals and metal products and machinery, but iron and steel employed nearly twice as much horsepower per wage earner as metals and metal products, and nearly three times as much as in machinery, per wage earner.

Figures recently compiled by the National Industrial Conference board leave no doubt as to the value of large and effective use of mechanical power. They provide a background for some interesting individual studies.

Manganese Ore Perversely Placed

INNATE perversity of inanimate objects has been noted since time immemorial to the regret of mankind. Distribution of manganese ore is an illustration of this situation. A survey of world production and consumption reveals that 93 per cent of manganese ore of a metallic content of 30 per cent or more is produced by five countries which use a negligible tonnage and export the remainder. Consumption of 68 per cent of the world's production of manganese ore is by seven countries which produce negligible tonnages and import their requirements.

Principal production thus is by nations having practically no need and principal consumption by nations destitute of domestic supplies. It is peculiar also that practically all manganese production is by nations classed as backward and not readily accessible to those who need manganese. These countries are Russia, India, Gold Coast, Brazil and Egypt. Mining methods there are less developed than in many other countries and costs doubtless are higher for that reason.

The consuming countries are the United States, France, United Kingdom, Germany, Belgium, Japan and Italy. With the present importance of manganese as an alloy medium in steel these countries are dependent on the former. Fortunately the area of production is more widely distributed than that of consumption and complete severance of supply by war seems unlikely.

What Our Readers Are Thinking

Protest Against Cut in Discount

To the Editor:

AS SUBSCRIBERS to your publication we are enclosing a copy of a letter which we have forwarded to our sources of sheet steel supply, thinking it might be of interest to you. This expresses keenly our unwillingness to "take the bottle":

"As a customer of your company, your company being one of our main sources of supply, and on account of our numerous pleasant transactions and visits with your representatives, we feel that we have a right to make a protest regarding the change in your policy which you have announced to take effect as of Sept. 30, 1928, allowing a one-half of 1 per cent instead of 2 per cent discount.

"Just what the effect will be remains to be seen. Our analysis, after reading your reasons and excuses for the change in policy, leads us to believe that either the Steel institute or fraternity, or both, were not possessed with a sufficient amount of intestinal fortitude to arrange their prices so that there would be an adequate amount of profit in the material they are marketing, and that it was thought wise to pinch down on the buyer, who has an unbroken record covering many years of prompt payment, with 2 per cent discount.

"It goes without saying, that your ruling will work a hardship on the sheet metal fabricators who pay their bills promptly, to an extent that you may or may not ever learn about, as they cannot so quickly, or will not, change their policy as you did.

"We feel hurt! Is there not some other recourse? Why not adopt a better policy: As one of the leaders, call the fraternity together, figure costs, and base your selling price on the results obtained. No fabricator objects to mills making a profit, however, we do object to being classed with the slow pay fabricator who knows nothing about discounts, and cares less."

COLUMBIAN STEEL TANK CO., *By A. A. Kramer. Kansas City, Mo., Aug.* 22, 1928.

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E. L. SHANER, Editor. — *J. D. PEASE, Advertising Director.* — *F. F. LIGHT, Circulation Manager.*

Heat Treating Important in Chain Manufacture. Page 503.

DIFFICULTIES encountered by American fabricators in buying foreign steel are outlined by Charles F. Abbott, executive director, American Institute of Steel Construction Inc. A formal statement by him appears on page 514 of this issue, and should be read by those who contemplate placing orders abroad. Whenever this question has been discussed in the past, by others, warning has been given that to purchase foreign steel without rigid inspection is to invite trouble. Mr. Abbott now explains certain features concerning mill practice and how they differ from American standards.

The Readers' Page

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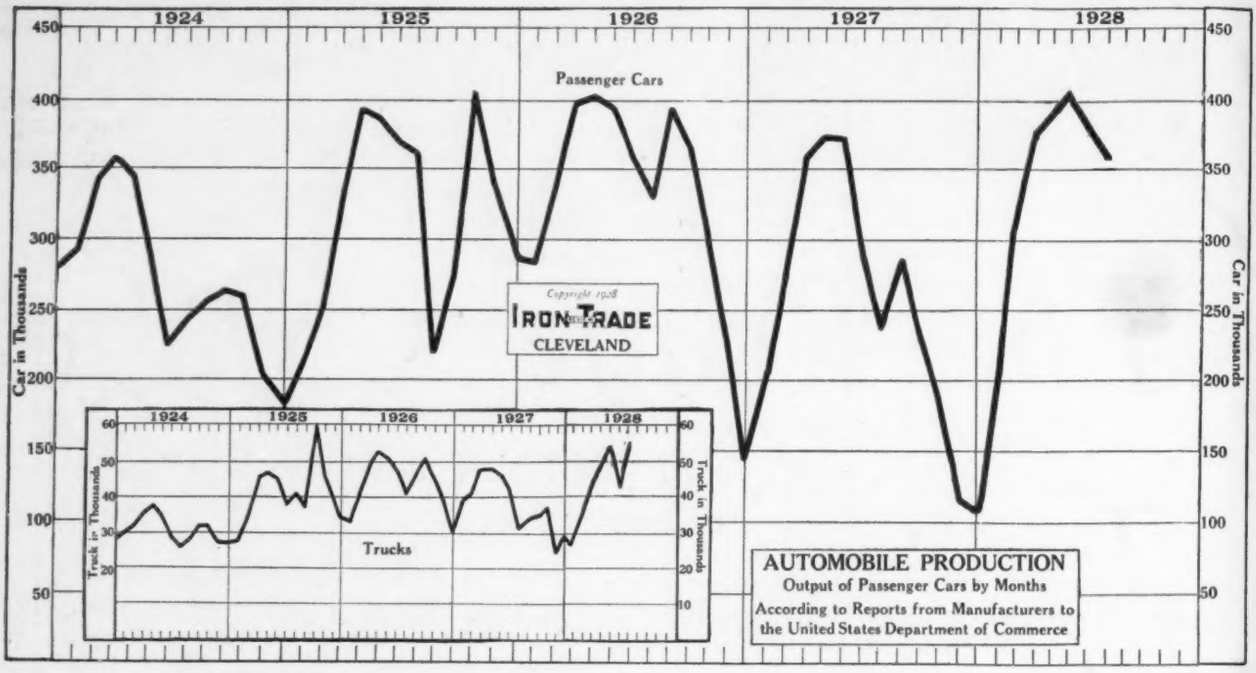
The Business Trend



Motor Car Activity Good Business Index

By JOHN W. HILL, Financial Editor

CONDITIONS in the automobile industry continue without any precedent for this time of the year. In point of actual production the record for the current summer has no equal during those months of any year. With respect to employment in automobile factories the present levels represent a new high mark for all time exceeding even the spring peak of 1926.

DURING July the output of cars and trucks declined somewhat from the June total. With Canadian production estimated there were about 414,000 motor vehicles produced during last month compared with 424,000 in June and with but 279,000 in July, 1927. The increase over one year ago when the industry was suffering from great uncertainty, was nearly 50 per cent.

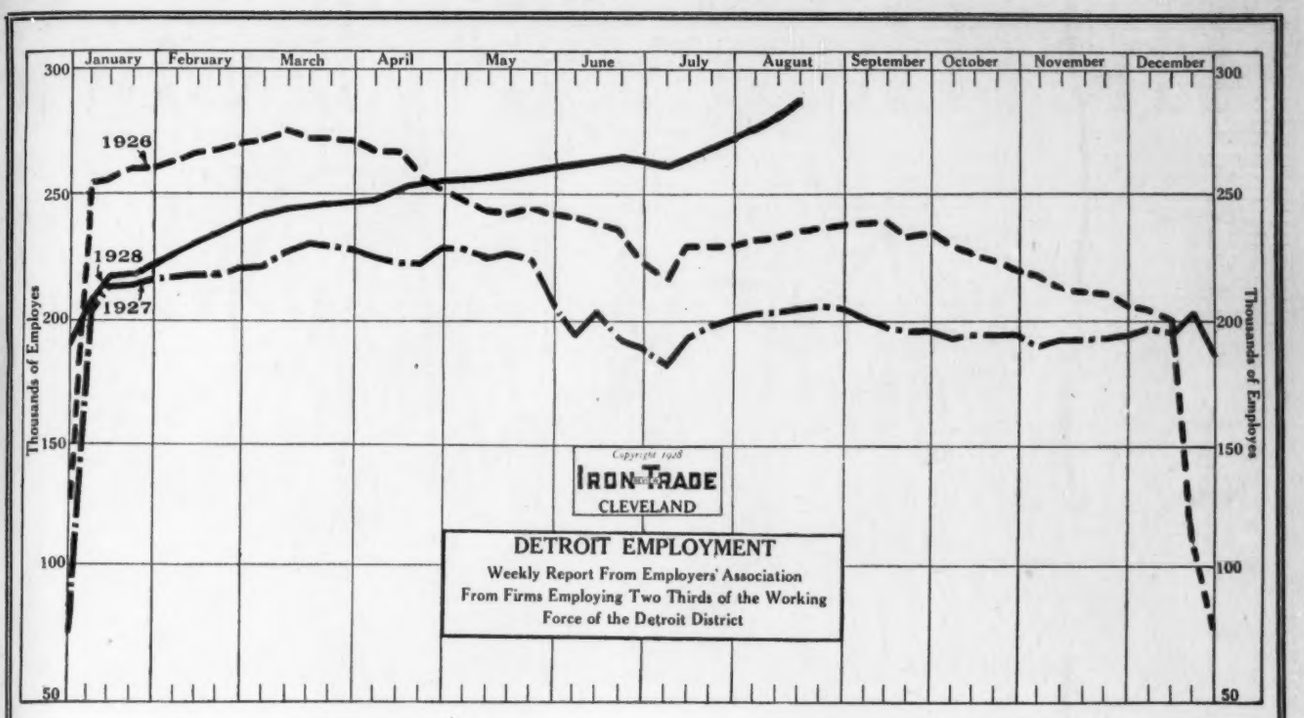
PART of the increase is due to the swelling total of production of Fords. The daily rate of output of these cars is now reported at about 3300, with the probability that the figure will reach 6000 in the early autumn. But Ford's operations do not account for the entire increase. Other companies are producing at high rates also. A new record of automobile output is almost certain for 1928.

PRESENT stimulation of the motor car business is partly due to the manufacture of new models. In some cases of popular makes deliveries are backward. The whole automobile picture, of course, is one reflecting a generally prosperous state for the country. There is no better index of public purchasing power.

LAST year there was an underproduction of automobiles compared with normal requirements. The letdown in industry was rather widespread. The current year has brought a more vigorous and sustained recovery than was expected by most. Added to the impetus of revival from a low level of activities, there has come in recent weeks a flood of farm dollars into the channels of trade.

SOMEONE has remarked that the political parties are promising the farmers so much that it is making the business uninteresting. The truth is that agriculture has been on the way up for three or four years. Conditions are decidedly better and with good 1928 crops and more than average income from their sale, the farm situation is proving a tonic to business. The outlook for the remainder of this year for trade is good.

The Business Trend

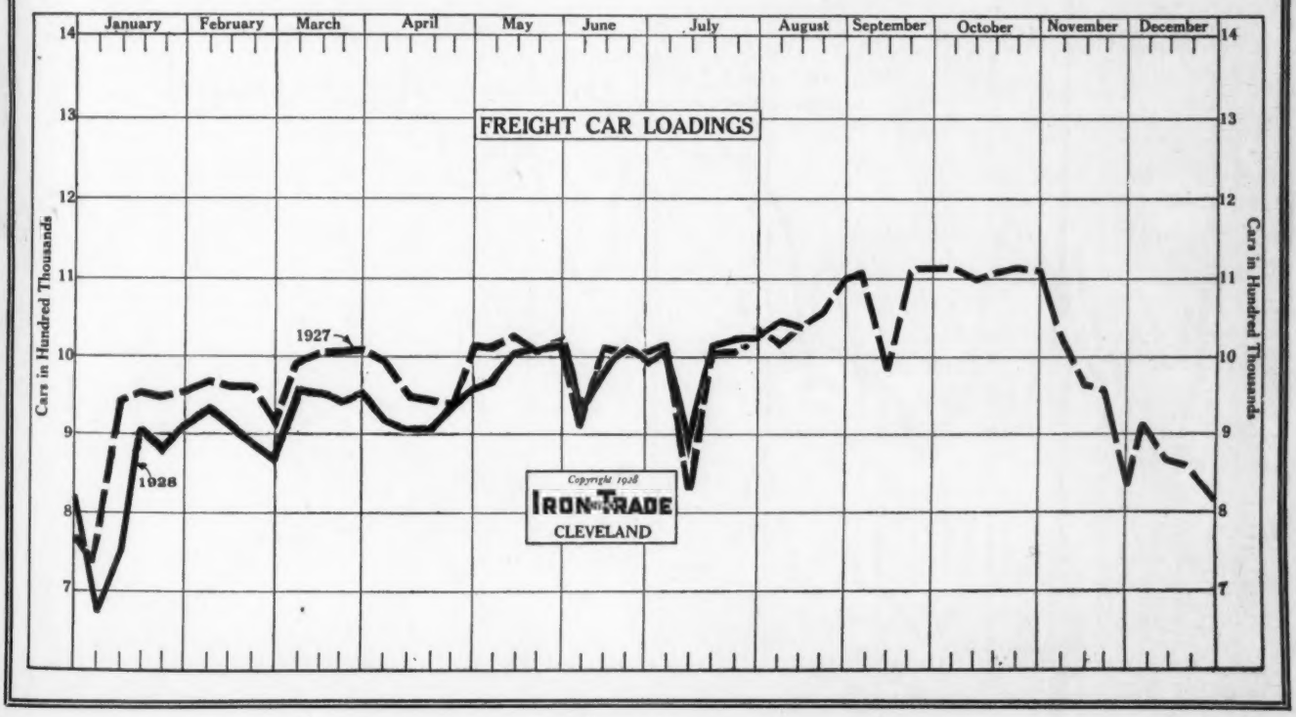


Detroit Employment

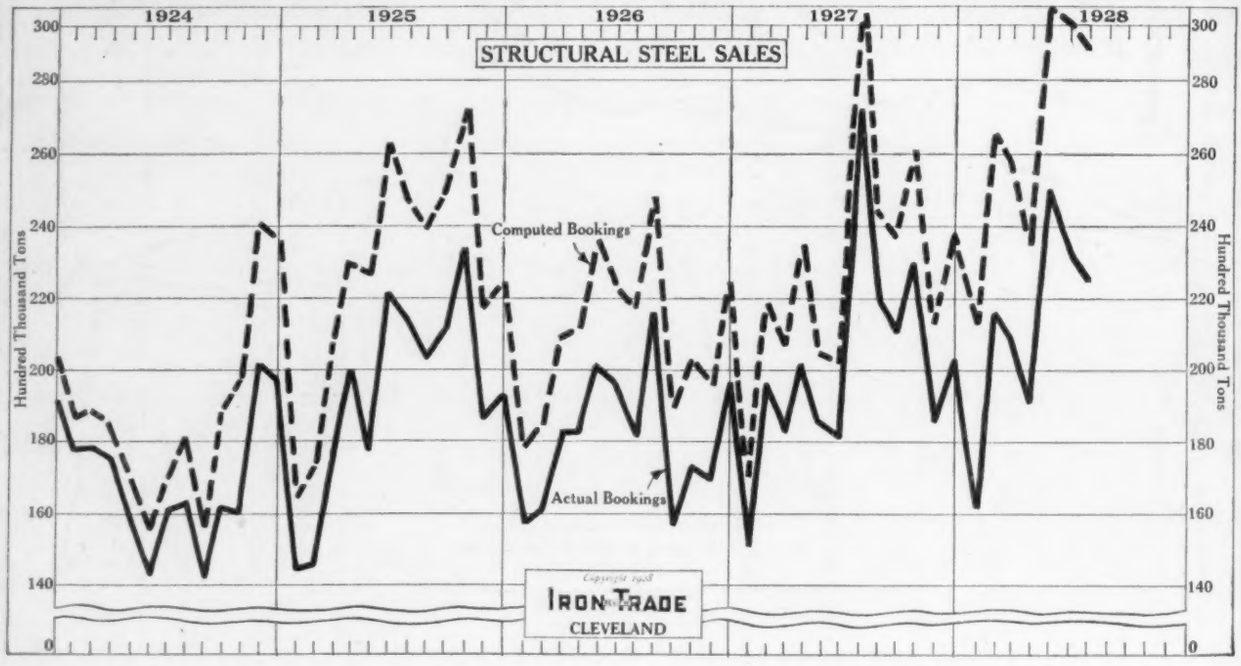
IMPORTANT gains in employment records continue to be reported in the Detroit manufacturing district. For the week ended Aug. 21 the Detroit Employers association reports total payrolls at 287,603, an increase of 7500 over the previous week and one of 81,529 over the corresponding week in 1927. The increase in employment reflects the mounting trend of operation in the automobile industry. A part of the increase is due to climbing output by the Ford Motor Co. and part to other plants.

Freight Car Loadings

FOR the second week of August loadings of revenue freight totaled 1,044,442 cars. This was a decrease of about 4000 cars from the preceding week, due chiefly to a reduction in the loading of miscellaneous freight. It is also a decline of 5000 cars loaded the same week in 1927. Total loadings for the first 32 weeks in the year amounted to 30,493,100 cars compared with 31,508,478 cars in the same period in 1927. July was the first month showing an increase of loadings over one year ago.



The Business Trend

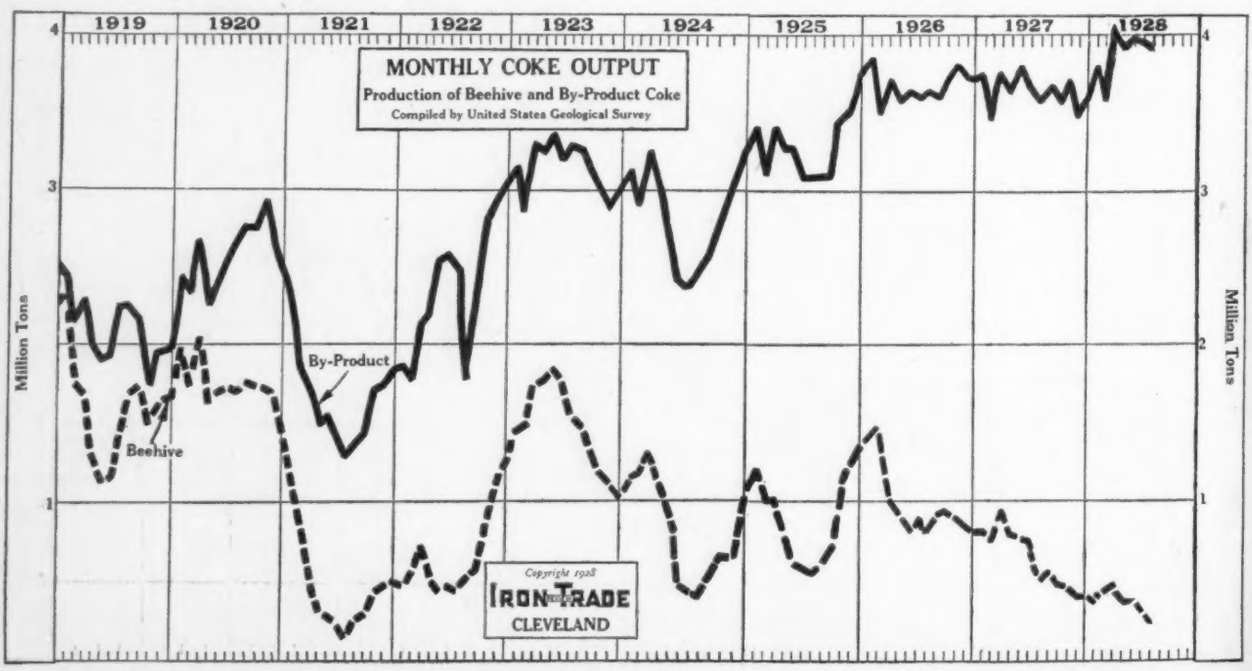


Structural Awards

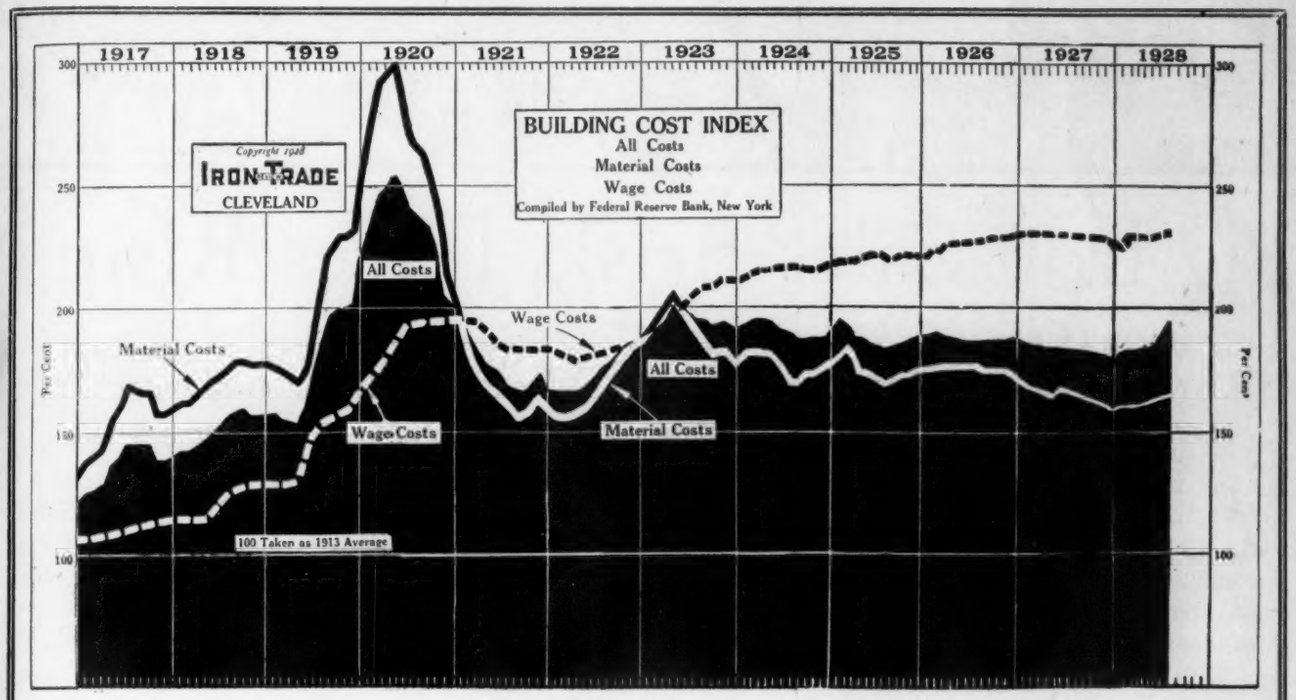
DURING July there were some seasonal recession in the volume of structural awards. Computed tonnage for the month as reported to the department of commerce by principal manufacturers, amounted to 292,500 tons compared with 303,750 tons one month before and 345,000 tons one year ago. New orders were 78 per cent of capacity compared with 92 per cent in July, 1927. Actual tonnage of new orders reported was 225,600 tons compared with 280,613 tons in July, 1927.

Coke Production

SOMEWHAT lower requirements of blast furnaces during July were reflected in a further decrease in the output of both by-product and beehive coke. Total coke production during the month was 81,186 net tons less than in June. Total output of by-product coke for 31 days in July was 3,911,082 tons, a decrease of 50,186 tons compared with the preceding month. In July, 1927, the output was 3,656,706 tons. Beehive coke output of 271,000 tons compared with 302,000 tons in June.



The Business Trend

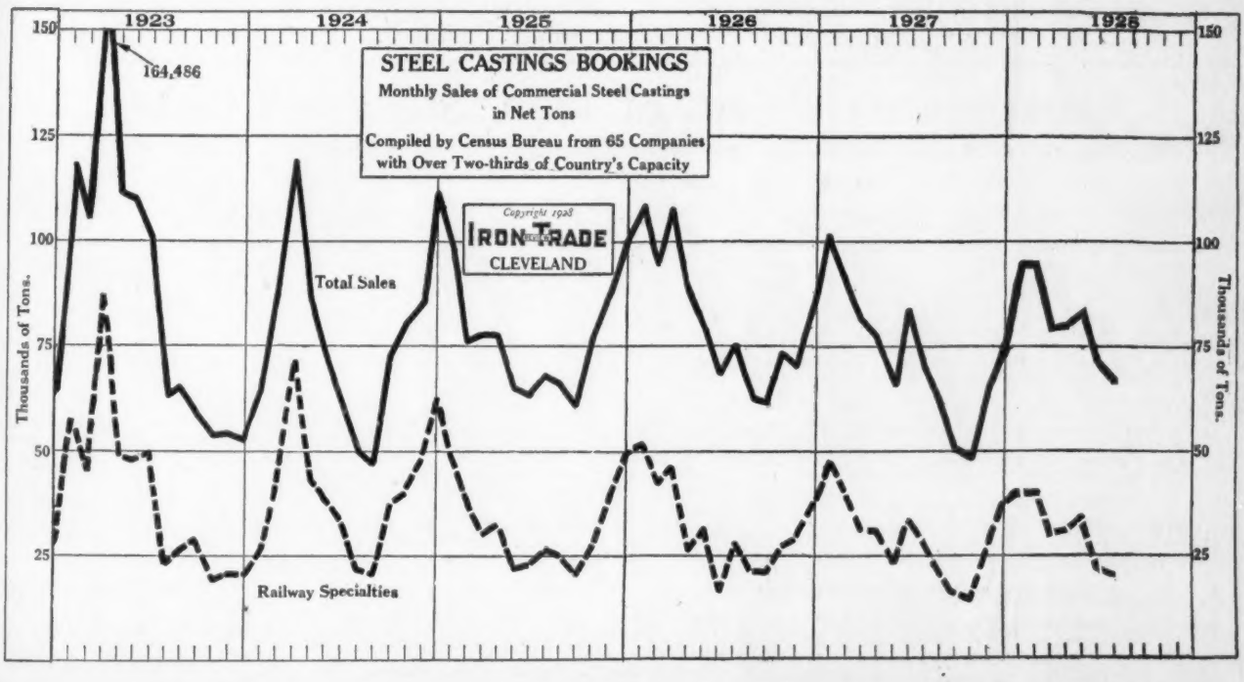


Building Costs

THE cost of building has been rising during the current year. Advances have been registered for both material and for wages. The index of material costs now stands at 163 compared with 156 at the beginning of the year and with 162 one year ago. The wage index after remaining practically stationary for a number of months has started to rise. It now stands at 232 against 231 one month before, and 229 one year ago. All costs are at an index of 191 of the 1913 average.

Steel Castings

NEW orders for steel castings in July, as reported to the department of commerce by leading manufacturers, totaled 66,714 tons. This compared with 71,745 tons in June and 74,246 tons in July, 1927. The orders represented 46 per cent of shop capacity compared with 52 per cent one year ago. Railway castings bookings were 20,483 tons against 22,597 tons one month before and 31,011 tons one year ago. Miscellaneous castings declined from 49,148 in June to 46,231 tons in July, 1928.



Pig Iron Sales Brisk, Prices Rising

Advances General Following Heavy Covering—Steel Deliveries Becoming Deferred—Higher Quotations Nearing Test—C. & O. Inquiring for Rails

PIG iron prices are increasingly buoyant under the influence of continued heavy selling. At Chicago the market has been advanced fifty cents and at Birmingham seventy-five. Mahoning and Shenango valley furnaces are quoting the basic and foundry grades up fifty cents, and if these levels are established producers at Cleveland will take their cue. Buffalo makers are less prone to shade, especially in the East, and one has put up all grades fifty cents.

Melters in All Districts Are Buying

As usual, coverage prior to these advances has been extensive, and some melters are protected over the rest of the year. When Cleveland producers last week booked 72,000 tons they brought their total for this buying movement up to 317,000 tons; to a large extent this denotes confidence of automotive foundries in their fourth-quarter requirements. Well over 100,000 tons has been placed at Pittsburgh, including 20,000 tons of basic by three users and 16,000 tons of foundry iron by a sanitary ware interest. Eastern Pennsylvania sales include 30,000 to 35,000 tons of basic and 15,000 tons of low phos iron. In Virginia 10,000 tons of pipe iron has been placed.

In steel also the stronger price tendency and the sustained demand for immediate material continue marked. Although some sheet mills have collected a semblance of a backlog, orders are almost immediately translated into rollings and the 80 per cent operating rate of the steel industry as a whole is closely attuned to current needs. Producers are convinced that their record-breaking July and August business has not been at the expense of the usual early-fall recovery, and they look to September for betterment.

Little 1928 Line Pipe Capacity Open

Automotive specifications for steel are insistent and broad. Line pipe business, while short of the July peak, is sufficient to take up the little slack remaining in schedules the remainder of the year. The Chesapeake & Ohio railroad inquiry for 45,500 tons of rails, apparently for 1928 delivery, promises needed support for the rail mills at Chicago. In some quarters there is confidence that good freight car business is in prospect.

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Aug. 29, 1928	July 1928	May 1928	Aug. 1927
PIG IRON				
Bessemer, del., Pittsburgh	$18.76	18.76	19.26	20.26
Basic, valley	16.00	15.95	16.20	17.50
Basic, eastern, del. eastern Pa.	19.00	19.00	19.10	19.75
*No. 2 foundry, del., Pittsburgh	18.26	18.26	18.86	19.26
No.2 foundry, Chicago	18.00	17.60	18.20	19.50
*Southern No. 2, Birmingham	16.25	15.50	16.00	17.25
*Southern Ohio, No. 2 Ironton	19.00	19.00	19.00	19.00
**No. 2X, Virginia furnace	20.00	20.50	20.50	21.50
**No. 2X, eastern, del. Phila.	20.76	20.76	21.26	21.26
Malleable valley	17.00	17.00	17.25	17.50
Malleable, Chicago	18.00	17.60	18.20	19.50
Lake Superior charcoal del. Chicago	27.04	27.04	27.04	27.04
Gray forge, val., del. Pittsburgh	18.01	18.76	18.76	18.76
Ferromanganese, del. Pittsburgh	109.79	109.79	109.79	94.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville, furnace, ovens	2.75	2.60	2.55	3.00
Connellsville, foundry, ovens	3.75	3.50	3.55	4.00
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	33.00	33.00	33.10	33.75
Sheet bars, open-hearth, Pittsburgh	33.00	32.25	34.00	33.50
Billets, open-hearth, Pittsburgh	32.00	32.25	33.00	33.00
Wire rods, Pittsburgh	42.00	42.00	44.00	43.00

	Aug. 29, 1928	July 1928	May 1928	Aug. 1927
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.90	1.85	1.85	1.80
Steel bars, Chicago	2.00	2.00	2.00	1.95
Steel bars, Philadelphia	2.17	2.17	2.17	2.12
Iron bars, Chicago	2.00	2.00	2.00	2.00
Shapes, Pittsburgh	1.90	1.85	1.85	1.80
Shapes, Philadelphia	2.01	2.01	2.08	2.02
Shapes, Chicago	2.00	2.00	2.00	1.95
Tank plates, Pittsburgh	1.90	1.85	1.85	1.80
Tank plates, Philadelphia	2.10	2.10	2.05	2.12
Tank plates, Chicago	2.00	2.00	2.00	1.95
Sheets, black, No. 24, Pittsburgh	2.65	2.65	2.75	3.00
Sheets, blue anl., No. 10, Pittsburgh	2.00	2.00	2.00	2.25
Sheets, gal., No. 24, Pittsburgh	3.50	3.50	3.65	3.85
Sheets, black, No. 24, Chicago	2.80	2.80	2.85	3.15
Sheets, blue anl., No. 10, Chicago	2.15	2.15	2.20	2.40
Sheets, galvanized, No. 24, Chicago	3.65	3.65	3.80	4.00
Plain wire, Pittsburgh	2.40	2.45	2.50	2.40
Wire nails, Pittsburgh	2.55	2.55	2.60	2.55
Tin plate, per base box, Pittsburgh	5.25	5.25	5.25	5.50
SCRAP				
Heavy melting steel, Pittsburgh	15.50	14.10	15.00	15.00
Heavy melting steel, eastern Pa.	12.75	12.75	13.75	13.75
Heavy melting steel, Chicago	12.75	12.30	12.95	12.35
No. 1 wrought, eastern Pa.	14.50	15.25	15.25	15.95
No. 1 wrought, Chicago	12.30	12.30	13.05	13.45
Rails for rolling, Chicago	15.00	14.50	14.35	15.00

Current Prices for Rolled Steel Products

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

STEEL PLATES

Pittsburgh	1.90c
Philadelphia, del.	2.05c to 2.15c
New York, del.	2.125c to 2.225c
Boston, del.	2.265c to 2.415c
Chicago	2.00c
Cleveland	2.09c
Buffalo	2.00c
Coatesville, Sparrows Point	1.95c to 2.00c
Birmingham	2.05c
Pacific Coast, c.i.f.	2.25c

STRUCTURAL SHAPES

Pittsburgh	1.90c
Philadelphia, del.	2.01c to 2.11c
New York, del.	2.14c to 2.19c
Boston, del.	2.265c to 2.415c
Chicago	2.00c
Cleveland, delivered	2.09c
Buffalo	2.00c
Bethlehem	1.95c to 2.00c
Birmingham	2.05c
Pacific Coast, c.i.f.	2.35c

BARS

SOFT STEEL

Pittsburgh	1.90c
Chicago	2.00c
Birmingham	2.05c
Buffalo	2.00c
Pacific Coast, c.i.f.	2.35c
Cleveland, mill	1.85c
Cleveland, delivered	1.92½c and 2.04c
Philadelphia, delivered	2.17c to 2.22c
New York, delivered	2.19c to 2.24c
Boston, delivered	2.265c to 2.415c
Pittsburgh, cold finishing	2.00c to 2.05c
Pittsburgh, forging quality	2.10c to 2.15c

RAIL STEEL

Chicago Heights	1.85c to 1.90c
Eastern mills	1.75c

IRON

Chicago	2.00c
New York, delivered	2.14c to 2.24c
Philadelphia, delivered	2.12c to 2.22c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pittsburgh, billet	2.15c
Chicago, billet	2.30c to 3.00c
Chicago, rail steel	2.00 to 2.60c
Chicago, rail steel, road and bridge work	1.85c to 1.95c

COLD FINISHED STEEL

Cold finished steel bars, drawn or rolled, Pitts., Chi., c.l.	2.20c
Shafting (turned, polished) Pittsburgh	2.20c
Shafting (turned, ground) mill (Depending on size, 1 3/16 to 7-inch)	2.45c to 2.90c
Cold finished steel bars, Cleve.	2.25c

TIN AND TERNE PLATE

Prices per 100-pound box Pittsburgh

*Tin plate, coke base	$5.25
Gary, Ind., base 10 cents higher.	
Long ternes, primes, No. 24	4.10c

*Price subject to quantity differentials.

SHEETS

SHEET MILL BLACK

No. 24, Pittsburgh base	2.65c
No. 24, Philadelphia, delivered	2.92c to 3.02c
No. 24, Gary, Indiana Harbor	2.75c
No. 24, Chicago, delivered	2.80c
No. 24, Birmingham, base	2.90c

TIN MILL BLACK

No. 28, Pittsburgh, base	2.85c to 2.90c
No. 28, Gary, base	2.95c to 3.00c

GALVANIZED

No. 24, Pittsburgh, base	3.45c to 3.55c
No. 24, Philadelphia, delivered	3.72c to 3.82c
No. 24, Gary, Indiana Harbor	3.60c
No. 24, Chicago, delivered	3.65c
No. 24, Birmingham, base	3.70c

BLUE ANNEALED

No. 10, Pittsburgh, base*	2.00c
No. 24, Philadelphia delivered	2.32c to 2.42c
No. 10, Gary, Indiana Harbor	2.10c
No. 10, Chicago, delivered	2.15c
No. 10, Birmingham, base	2.20c

*Plus 10 cents for 45 inches or wider.

AUTOMOBILE

No. 20, Pittsburgh, base	4.00c

FURNITURE

No. 24, Grade A, Pittsburgh	3.80c
No. 24, Grade B, Pittsburgh	3.60c

(Turn to the following page)

Many of the recent advances in steel prices will undergo a test in the next fortnight. Meanwhile, a tighter delivery situation is developing.

Sales of steel bars, plates and shapes below the equivalent of 1.90c, Pittsburgh, are becoming the exception. Bars are moving to diversified consumers. River barge awards at Pittsburgh provide tonnage for plate mills. The aggregate of small structural awards at Chicago is such as to compel fabricators to order plain material farther ahead than in some months. A large share of the 50,000 tons of subway work which is pending in New York may be placed this week.

Alloy Steel Put Up $2 Per Ton

Alloy steel barmakers are advancing $2 per ton, to 2.75c, base, mill, plus the usual quality differentials. More makers of wire and nails are booking into the fourth quarter at current quotations. The $2 per ton advance in cold-rolled strip is being adopted by most makers but lacks a real test. Hot stripmakers sense a trend toward 2.20c for widths under 3 inches, 2.00c for 3 to 6 inches and 1.90c for 6 to 12 inches, all connoting advances of several dollars.

Iron and steel scrap continues to acquire strength in all districts. The market will become more clearly defined in the first week of September when railroad lists are closed. Semifinished producers are extending current prices into the fourth quarter and are accumulating backlogs. For September delivery most sheet mills are quoting 4.00c, Pittsburgh, on autobody, 3.45c to 3.55c on galvanized, 2.65c on black and 2.00c to 2.10c on blue annealed. Western buyers have covered sufficiently heavy to provide Chicago mills with modest backlogs.

Operating Figures Indicate Expansion

Steelworks operations at Chicago, for a number of weeks at 75 per cent, have recovered to slightly over 80 per cent. This rate also describes production in the Mahoning valley, where 105 out of 127 independent sheet mills are active this week and 44 out of 53 independent open hearths are on. The larger steel producers in the Pittsburgh district are averaging 80 to 85 per cent operations. Semifinished steel production at Cleveland is at capacity. Buffalo mills average 94 per cent. Steel corporation subsidiaries are at 77 per cent and the entire industry is at about 75 per cent.

British trade authorities are confident that the industry is turning, after reaching the lowest point of the year, and still look for expanding autumn business. Some good orders for railroad rolling stock for export have been booked. Berlin reports export demand for iron and steel broadening and prices rising. In France the markets are firm and active, while in Belgium the price advance seems to be losing momentum which has been marking it in recent weeks.

Composite Market Average

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (Aug. 29, 1928)	$35.10
Last week (Aug. 22, 1928)	35.01
One month ago (July, 1928)	34.91
Three months ago (May, 1928)	35.54
One year ago (August, 1927)	36.25
Ten years ago (August, 1918)	56.67
Fifteen years ago (August, 1913)	25.97

Rising iron and steel prices are reflected by the IRON TRADE REVIEW composite of 14 leading iron and steel products, which is up nine points this week to $35.10. A month ago this index stood at $34.97.

Current Rolled Steel Prices

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

SEE ALSO PRECEDING PAGE

HOOPS, BANDS, STRIPS

Hot strip, under 3-inch, Pitts. 2.05c to 2.20c
Hot strip, 3 to 6-inch, Pitts. 1.90c to 2.00c
Hot strip, 6 to 12-inch, Pitts. 1.80c to 1.90c
Hot rolled strip, 12 to 24-inch 16 gage and heavier, coils or cut lengths, 1.85c plate basis, or 2.00c blue annealed basis.
Hot strip, bands, under 3-in., Chicago 2.30c
Hot strip, bands, 3 to 6-in. Chi. 2.20c
Hot strip, bands, 6 to 12-in., Chi. 2.00c
Hot strip, 12 to 24 in., Chi..... 2.10c
blue annealed sheet basis.
Cold rolled strip, hard coils, 16 inches and wider by 0.100-inch and heavier, base Pitts., Cleve., (3 tons and over)..... 2.75c to 2.85c
Quantity extras: 5999 to 2000 pounds, 0.25c; 1999 to 1000 pounds, 0.65c.

ALLOY STEEL

Hot Rolled
F.o.b. Mills
Alloy Quality Bar Base is 2.75c

S.A.E. Series Number	Alloy differential	Net price 100 lb. bars
2000	0.25	$3.00
2100	0.55	3.30
2300	1.50	4.25
2500	2.25	5.00
3100	0.55	3.30
3200	1.35	4.10
3300	3.80	6.55
3400	3.20	5.95
4100 0.15-0.25 Mo.	0.50	3.25
4100 0.25-0.40 Mo.	0.70	3.45
4600 0.20-0.30 Mo. 1.25-1.75 Ni.	1.05	3.80
5100 0.60-0.90 Cr.	0.35	3.10
5100 0.80-1.10 Cr.	0.45	3.20
5100 Chrome Spring	0.20	2.95
6100 Bars	1.20	3.95
6100 Spring Steel	0.95	3.70
Chrome Nickel Vanadium	1.50	4.25
Carbon Vanadium	0.95	3.70
9250	0.25	3.00

TUBING

Boiler
Carload Discounts—Less-carloads 4 points Lower—F.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch 42½
Charcoal iron, 3¼ to 4½-inch 9
Seamless hot rolled 3¼ to 3½-inch.... 56
Further discounts of six 5 per cents for 21,000 pounds or more on lap welded steel. On charcoal two 10's and one 2½ on 12,000 pounds or more.

COLD DRAWN SEAMLESS
F.o.b. mill in desirable quantities
Random length over 5 feet .....55 per cent
Selected lengths, 1 to 18 feet .....53 per cent

WIRE PRODUCTS

To Jobbers in Carloads
F.o.b. Cleveland and Pittsburgh base
Dealers 10 cents per 100 pounds extra

Bright plain wire, No. 9 gage.. 2.40c
Annealed fence wire 2.55c
Galvanized wire, No. 9 gage.... 3.00c
Barbed wire, painted 2.95c
Barbed wire, galvanized 3.20c
Per 100 lbs.
Wire nails $2.55
Galvanized nails, plus differ. 4.55
Polished staples 3.00
Galvanized staples 3.25
Coated nails, 100 lb. kegs, Sept. 1, 1926 extras apply.... 2.55
Woven wire fencing (retailers) 12½ gage, 26-in. high, 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts. $20.03
Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Cleveland-Pittsburgh base on products made there; Duluth $2 higher, Worcester, Mass., and Fairfield, Ala., $3 higher.

CAST IRON WATER PIPE

Prices per net ton
Class B Pipe

Six-inch and over, Birming'm..$34.00 to 35.00
Four-inch, Birmingham ..... 38.00 to 39.50
Four-inch, Chicago ..... 46.20 to 47.20
Six-inch to 24-inch, Chicago..... 42.20 to 43.20
Four-inch, New York ..... 41.50 to 42.60
Six-inch and over, New York.. 37.60 to 38.60
Standard fittings, Bir. base..... $100.00
Six to 24-inch base; over 24-inch; plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.
Class A pipe is $4 higher than Class B.

IRON AND STEEL PIPE

Base Discounts Pittsburgh and Lorain, O., to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel*	62	50½
1 to 1½-inch butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less, Chicago del., 2½ points less.
*To large jobbers these discounts are increased on black by 1 point and a supplementary discount of 5 per cent on galvanized by 1½ points with a supplementary 5 per cent.

CHAIN, PILING, CUT NAILS

Cut nails, c.l., f.o.b. mills..... 2.70c
Cut nails, l.c.l. f.o.b. mills..... 2.80c
Chain,, 1-in., proof coil, Pitts.... 6.00c
Sheet piling base, Pittsburgh.. 2.25c

RAILS, TRACK MATERIAL

Standard bessemer rails, mill $43.00
Standard open-h'th rails, mill $43.00
Relaying rails, St. Louis.....$24.00 to 31.00
Relay rails, Pitts. 60 to 90 lb...$22.00to 27.00
Light rails, 25 to 45, mills..... $36.00
Angle bars, Chicago base..... 2.75c
Spikes, railroad, Pittsburgh.... 2.80c
Spikes, small railroad, ⅞-inch and smaller, Pitts..... 2.80c
Spikes, boat and barge, Pitts. 3.00c
Spikes, railroad, Chicago 2.80c
Track bolts, Pitts., steam roads 3.80c
Track bolts, Pitts., stand, jobbers .....70 off list
Track bolts, Chicago 3.80c
Tie plates, Chicago, Pitts..... $43.00

BOLTS AND NUTS

Birmingham and Chicago
Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927.
Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS

All sizes, cut thread ..... 60 to 70 off
Rolled thread ⅝x6 and smaller take 10 per cent lower list.
Eagle list ..... 60 to 70 off

MACHINE BOLTS

All sizes, cut thread ..... 60 to 70 off
Rolled thread ⅝x6 and smaller take 10 per cent lower list.
Lag screws ..... 60 to 70 off
Plow bolts, Nos. 1-2-3-7 heads 60 to 70 off
Tap bolts ..... 60 to 70 off
Blank bolts ..... 60 to 70 off
Stud bolts without nuts ..... 60 to 70 off
Stove bolts, 75, 20, 10 and 5 off in pkgs., 75, 20, 10 and 5 with 2½ off in bulk.
Tire bolts .....60-5 off

Nuts

Semifinished .....60 to 70 off

HEXAGON CAP SCREWS

Milled .....80-10-10 off
Upset 1 in. diam. and smaller .....85-5 off

SQUARE HEAD SET SCREWS

Milled .....80-10 off
Upset 1 in. diam. and smaller.....80-10-10 off

RIVETS

Struct., c.l., Pitts.-Cleve..... 2.80c to 2.90c
Structural, c.l., Chicago 3.00c
**⅞-inch and smaller, Pitts.....70 and 10 off
Chi., Cleve. .....70 to 70 and 10 off
**Some makers quoting 70 off with freight allowed on 300 pounds or more.

WASHERS

Wrought, c.l., Pitts. dist.....$6.50 to 6.75 off
Wrought, c.l., Chicago dist.....$6.70 to 6.90 off
Lock: To dealers .....85-5 off
Lock: To consumers .....85 off

Raw Materials and Semifinished Products

SEMIFINISHED MATERIAL

Prices Per gross ton

BILLETS AND BLOOMS
4 x 4-inch base

Pittsburgh, open-hearth .....$32.00 to 33.00
Pittsburgh, bessemer ..... 32.00 to 33.00
Youngstown 32.00
Cleveland 33.00
Philadelphia ..... 37.30 to 38.30
Chicago ..... 32.00 to 33.00
Forging, Chicago 38.00
Forging, Pittsburgh 38.00
Forging, Philadelphia 43.30

SHEET BARS

Pittsburgh .....$32.00 to 33.00
Youngstown 33.00
Cleveland ..... 32.50 to 33.00
Chicago 35.00

SLABS

Pitts., Young., and Cleve.....$32.00 to 33.00

WIRE RODS

Pittsburgh, Cleveland $42.00
Chicago 45.00

SKELP

All grades, Pittsburgh ..... 1.85c to 1.90c

IRON ORE

LAKE SUPERIOR ORE
Per Gross Ton, Lower Lake Ports

Old range bessemer, 51½%.... $4.55
Mesabi bessemer, 51½% 4.40
Old range nonbessemer 51½% 4.40
Mesabi nonbessemer, 51½%..... 4.25

EASTERN LOCAL ORES
Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%..... 8.00 to 8.50
Copper free low phosphorus 58 to 65 per cent ..... nominal

FOREIGN ORE
Cents per unit, alongside docks, Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-8% manganese.. 11.00
North African low phosphorus 10.00 to 11.00
Swedish foundry or basic, 65%—none offered
Spanish and North African basic, 50 to 60 per cent ..... 8.50 to 10.00
Newfoundland foundry, 55%.... 8.50 to 9.00

MANGANESE ORE

Prices do not include duty of 1 cent per pound of metallic manganese contained.

Brazilian ..... 36 to 38 cents
Indian .....36 to 38 cents
Caucasian (53-55 per cent) ....38 to 40 cents

FLUORSPAR

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton....$16.50 to 17.00
Washed gravel, imported duty paid, east. tidewater, net ton 15.50

REFRACTORIES

FIRE CLAY BRICK
Per 1000 f.o.b. works
First Quality

Pennsylvania .....$43.00 to 46.00
Ohio ..... 43.00 to 46.00
Illinois ..... 43.00 to 46.00
Kentucky ..... 43.00 to 46.00
Missouri ..... 43.00 to 46.00
Maryland ..... 43.00 to 46.00
Georgia and Alabama ..... 40.00 to 45.00

Second Quality

Pennsylvania ..... 35.00 to 38.00
Ohio ..... 35.00 to 38.00
Illinois ..... 35.00 to 38.00
Kentucky ..... 35.00 to 38.00
Missouri ..... 35.00 to 38.00
Maryland ..... 35.00 to 38.00
Georgia and Alabama ..... 30.00 to 35.00

SILICA BRICK

Pennsylvania 43.00
Joliet, Ill., East Chicago, Ind.... 52.00
Birmingham ..... 50.00 to 51.00

MAGNESITE BRICK
Per Net Ton

9 x 4½ x 2½ 65.00

MAGNESITE

Net Ton Chester, Pa., and Baltimore base
Dead-burned grain magnesite.... 40.00

CHROME BRICK

Net Ton Chester, Pa., and Baltimore base.
9 x 4½ x 2½ 45.00

Pig Iron

Long-Deferred Price Advance Sweeps Markets—Heavy Buying Continues—30,000 Tons of Basic Placed at Philadelphia

CLEVELAND pig iron sellers in advancing prices 50 cents for outside delivery ten days ago started a movement which has swept around the leading market districts of the country. Lake furnaces west of Cleveland took similar action. Chicago furnaces have gone up 50 cents; St. Louis has followed suit. Alabama and Tennessee furnaces raised their prices 75 cents, finding less competition from lake furnaces along the Ohio river. The valley market is up 50 cents; Buffalo furnaces have made two advances of 50 cents each in the past fortnight; this influence has extended all through the eastern market. One producer at Buffalo is up 50 cents on all grades. Accompanying this price movement there have been substantial sales.

PITTSBURGH, Aug. 28.—Pig iron prices are stronger, with sales and inquiry more active. Sustained steelmaking rates and the trend toward higher prices for finished steel and scrap are factors in the improvement. Basic iron is firm at $16, valley. Several lots are reported to have been closed recently at this figure. The Allegheny Steel Co. purchased 20,000 tons of basic; Edgewater Steel Co., 5000 tons, and American Steel Foundries, 5000 tons, the latter for delivery to Alliance, O. Practically all sellers state $17, valley, is their minimum for No. 2 foundry iron, believing lower figures disappeared with the recent closing by the Standard Sanitary Mfg. Co. of 16,000 tons at $16.50, valley, for delivery over the remainder of the year. Jobbing foundries are more active, and report better work in sight. Inquiry for malleable is expanding, with $17, valley, firm. Low phosphorus is steady at $26.50, valley.

Boston, Aug. 28.—About 12,000 tons of pig iron was booked here during the past week. At the same time there was an advance of 50 cents a ton in Buffalo prices, resulting in $17 for No. 2 plain and $17.50 for No. 2X, while No. 1X was marked up to $18.50. It still is possible, however, to obtain some iron at lower prices. Included in the sales were 2000 tons for a Providence foundry, 1200 tons for a Connecticut foundry, and 1000 tons for a Massachusetts foundry.

New York, Aug. 28.—Sales of pig iron the past week involved fully 15,000 tons, the principal business comprising about 5000 tons which was bought by General Electric Co. for shipment to its various plants. New inquiries involve 3000 to 4000 tons. the Buffalo price is showing a firmer tendency, although there has been no definite test to indicate the minimum. Current asking prices on Buffalo iron are $16.50 to $17, base, furnace. Water routes continue to be an important factor in determining the way business is placed. Arrangements have been made whereby another cargo of Dutch iron, about 2500 tons, is to be shipped direct from Holland to Bridgeport. All of the iron in the shipment has been sold.

Buffalo, Aug. 28.—Pig iron has developed surprising strength. All Buffalo makers claim absolute withdrawal in all fields of prices below $17 for foundry and $17.50 for malleable, with full differentials, and assert sales have been made at these prices. A portion of two 5000-ton inquiries previously reported was covered in Buffalo. Considerable small lot business also was taken. The American Radiator Co., with its North Tonawanda furnace down for relining, may buy Buffalo iron for the first time in months.

A leading merchant furnace interest today announced the following prices, representing an advance of 50 cents in each item: No. 2 plain $17.50, base, Buffalo; No. 2X $18; No. 1X $19, and malleable $18. Buffalo furnaces are heavily sold.

Youngstown, O., Aug. 28.—Sale of the first 500-ton lot of southern pig iron at the new price of $16.25 Birmingham, for No. 2 foundry, for September and fourth quarter delivery, an advance of 75 cents a ton, has just been made by a local producer.

Producers of basic iron in the valley are asking $16.50, furnace, as a minimum, while $17 is the minimum with those producers for No. 2 foundry. The recent advances in the markets along the Great Lakes and in the South are finding reflection here in firmer quotations. While one producer was told it was too high with its bid of $16.50, furnace, for the basic asked for by the American Steel Foundries for its Alliance, O., works, yet it continues to hold to that quotation. The successful bidder on at least part of the iron for Alliance was a broker who was able to make a price around $16.25, furnace, due to his having taken some basic weeks ago at about $16.

Cleveland, Aug. 28.—Demand for pig iron continues active and prices are strong. August was the "biggest" month in sales and shipments so far this year for furnace interests with headquarters in Cleveland. Their sales in the past week amounted to 72,300 tons, and brought their total for the present buying movement to date to 317,320 tons. One Cleveland furnace is out of the market except for serving a few of its local customers over the balance of the year. The steelworks interest here, generally an important factor in the pig iron market, has been operating steadily at 100 per cent since the early part of this year, and has little iron remaining to be sold. Stocks of all lake furnaces have been greatly reduced. Cleveland furnaces were successful in establishing their price at $17, base, furnace, for outside delivery. Other lake furnaces also have raised their prices 50 cents, and the upward movement has become general in the Middle West and eastern territory. While the price at Cleveland remains $17.50, base, furnace, for local delivery, a stronger tone in the valley market forecasts an advance here. If this develops, makers say the Cleveland price

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Pig Iron Prices

Per Gross Ton

Bessemer, valley furnace	$17.00
Bessemer, del., Pittsburgh	18.76
Basic, valley furnace	16.00
Basic, del., Pittsburgh	17.76
Basic, Buffalo furnace	17.00
Basic, del., eastern Pa.	18.75 to 19.25
Malleable, valley furnace	17.00
Malleable, del. Pittsburgh	18.76
Malleable, del. Cleveland	18.00
Malleable, Chicago furnace	18.00
Malleable, Buffalo furnace	17.50 to 18.00
Malleable, del. eastern Pa.	20.50 to 21.00
No. 1 foundry, Chicago furnace	18.50
No. 1X, eastern del., Phila.	21.26
No. 1X, Buffalo furnace	18.50 to 19.00
No. 2 foundry, valley furnace	16.50 to 17.00
No. 2 plain, Buffalo furnace	17.00 to 17.50
No. 2 foundry, del., Pittsburgh	18.26 to 18.76
No. 2 foundry, Chicago furnace	18.00
No. 2 foundry, Granite City	19.00 to 19.50
No. 2 foundry, Ironton furnace	19.00
No. 2 foundry, del. Cleveland	18.00
No. 2 plain, del., Phila.	20.26
No. 2 plain, Virginia furnace	20.00
No. 2 plain, N. J., tidewater	19.01 to 19.51
No. 2 Alabama, Birmingham	16.25
No. 2 Alabama, del., Cincinnati	19.94
No. 2 Tenn., Birmingham base	16.25
No. 2 Tenn., del., Cincinnati	19.94
No. 2 Alabama, del. Chicago	22.26
No. 2 Ala., del. Chicago, river-rail	22.26
No. 2 Alabama, del. Cleveland	22.51
No. 2 Alabama, del. St. Louis	20.67
No. 2X, east, N. J., tidewater	19.51 to 20.01
No. 2X, eastern, del. Phila.	20.76
No. 2X, foundry, Buffalo, furnace	17.50 to 18.00
No. 2X, eastern, del. Boston	20.91 to 21.41
No. 2X, Virginia furnace	20.00 to 20.50
Gray forge, val., del., Pittsburgh	18.01 to 18.26
Low phos., standard, valley	26.50
Low phos., standard, Phila	24.26 to 24.76
Low phos. copper bearing fur.	23.00 to 23.50
Charcoal, Birmingham	28.00
Charcoal, Superior, del., Chicago	27.04

CANADIAN PRICES

No. 2 foundry, del. Toronto	23.10 to 23.60
No. 2 foundry, del. Montreal	24.50 to 25.00
Malleable, del. Toronto	23.10 to 23.60
Malleable, del. Montreal	24.50 to 25.00
Basic, del. Montreal	23.50 to 24.00

Silvery iron, Jackson county (Ohio) furnace in per cents: 5—$22; 6—$23; 7—$24; 8—$25; 9—$26; 10—$28; 11—$30; 12—$32; 13—$34.

Bessemer ferrosilicon, Jackson county (Ohio) furnace, in per cents: 10—$30; 11—$32; 12—$34; 13—$36; 14—$38; 15—$40.50; 16—$43.

Coke

Demand for Foundry Fuel Holds Up—By-Product Prices Reaffirmed for October

DEMAND for by-product and beehive foundry coke is brisk, but new orders for furnace grades are in small volume. Some makers of by-product fuel have reaffirmed August prices for September, and prices generally are steady. The movement from beehive ovens has improved slightly, and restricted production is bringing about a firmer tendency.

Pittsburgh, Aug. 28.—Beehive coke demand is slightly better, but generally is moving in carload lots only. Restricted production is a factor for price steadiness. Sellers report little difficulty in obtaining $2.75 for furnace coke, with a tendency toward higher figures in some instances. Foundry coke generally is held at $3.75 to $4.50, some poorer quality fuel selling at less. Foundries specifications are at an unchanged rate. Medium sulphur heating coke is more active at $2.75.

Production of coke in the Connellsville region for the week ended Aug. 18 was 29,640 tons, compared with 29,730 tons the preceding week, according to the *Connellsville Courier*.

Boston, Aug. 28.—Coke producers are looking forward to this month's business exceeding July, which was the best month of the first seven months. Demand continues strong from foundries. Prices are steady.

New York, Aug. 28.—A somewhat firmer tone is reflected here in prices on 48-hour beehive furnace coke and some makers in the Connellsville district who were selling at $2.75, now are asking $2.85 at the ovens. Others still are quoting the old prices and the full range on 48-hour furnace coke is $2.55 to $2.85, Connellsville, equivalent to $6.46 to $6.76, delivered at Newark, N. J. Prices on foundry coke are unchanged. Delivered prices on by-product foundry coke continue $9 to $9.40 at Newark, depending on freight rate. Demand for foundry coke continues fair.

Cincinnati, Aug. 28.—August coke prices have been reaffirmed for September by leading distributors in this territory. Apparently, they are disregarding a Birmingham producer who has been circularizing Indiana and Ohio as far north as Columbus, with offers of foundry coke at $3. One sale is reported in Columbus at $2.50, base Birmingham. The foundry coke movement here is well up to July.

St. Louis, Aug. 28.—By-product coke makers report business more active than two weeks ago, but with total volume below that of the same time last year. New orders for foundry grades are not large, but specifications on contracts have improved. While still decidedly slow and weak, the tone of the bituminous coal trade is better. Mine No. 2 of the Madison County Coal Co., near Glen Carbon, Ill., employing 500 miners, has been reopened.

Birmingham, Ala., Aug. 28.—Independent coke producers here are pushing their product into Cincinnati, Detroit, Chicago, St. Louis and elsewhere, with considerable more success than was anticipated. Foundry coke is $5, base, Birmingham.

Coke Prices

Prices per Net Ton

Beehive Ovens	
Connellsville furnace	$2.75 to 3.00
Connellsville foundry	3.75 to 4.50
New River foundry	6.50 to 7.00
New River furnace	6.50
Wise county foundry	4.50 to 5.25
Wise county furnace	3.75 to 4.25
By-Product Foundry	
Newark, N. J., del.	9.00 to 9.40
Chicago, ovens	8.00
New England, del.	11.00
St. Louis, del.	9.00
Birmingham	5.00
Indianapolis, del.	8.25
Ashland, Ky.	7.00
Portsmouth, O.	7.00
Detroit, ovens	8.50
Buffalo, ovens	9.00

Ferroalloys

English High Manganese Spiegeleisen Sold at $35 to $36

New York, Aug. 28.—It was stated erroneously last week that high manganese spiegeleisen from England had been sold at $32, duty paid, seaboard. The price actually done on the high manganese metal ranges from $35 to $36, duty paid, along the eastern and gulf coasts. This material contains 26 to 29 per cent manganese. Some English spiegeleisen with manganese ranging from 19 to 21 per cent has been sold at $33 to $34, duty paid, gulf ports. Altogether more than 2000 tons of this English spiegeleisen has been sold in the past two months, the bulk of the business involving the high manganese metal. Domestic producers of spiegeleisen are receiving active specifications and their prices continue firm at $33, furnace, for 19 to 21 per cent metal and $32 for 16 to 19 per cent. Ferromanganese specifications are not as active as had been expected from the current rate of steel works' operations. Special ferroalloys are moving briskly on contracts. Prices are unchanged.

Pittsburgh, Aug. 28.—Ferroalloy shipments are active, specifications reflecting the continued heavy steelmaking rate. Ferromanganese is moving largely on contract, with practically all large users covered for their requirements. Spot buying is light, with the $105 duty paid seaboard, price firm. Ferrosilicon likewise is firm on $83.50 contracts, and high carbon ferrochrome holds at 11.00c a pound, with 30.00c ruling on the low carbon grade. Spiegeleisen is fairly active for this season and all tonnages are taking the $33 figure. Producers look for a continuation of good business through the fourth quarter.

Chicago, Aug. 28.—The market for ferroalloys is exceptionally strong. Sales are ahead of last year. Spiegeleisen is $33, base.

Chicago Steel Rate Up Five Points

Chicago, Aug. 28.—On the whole, mill operations during the past week have stepped up about 5 per cent and steelmakers now are operating at approximately 80 per cent of capacity. This represents an increase over July of 5 per cent on the average. Furnace operations continue unchanged, the leading interest having 16 out of 27 stacks active. Of the district's 36 blast furnaces 25 are active. Mill backlogs on bars and sheets are accumulating and promise to increase materially during the next three or four weeks.

Rail Mill at Birmingham Is To Resume

Birmingham, Ala., Aug. 28.—Steel mill operations in this district are on a 65 per cent basis. When the rail mill of the Ensley works of the Tennessee Coal, Iron & Railroad Co. resumes, about Sept. 9, it is understood a considerable amount of business will have accumulated and steady operation will follow indefinitely. Demand for sheets is active. Car works are going half time, with orders in hand now to continue for five or six weeks at least.

Ferroalloy Prices

Ferromanganese, 78 to 82 per cent tidewater, duty paid	$105.00
Ferromanganese, del. Pittsburgh	109.79
Spiegeleisen, 19 to 21 per cent domestic furnace	33.00
*Ferrosilicon, 50 per cent, freight allowed, carloads	83.50
*Do., less carload	88.50
Do., 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.00
Do., for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	96.00
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload, producers plant, net ton	200.00
Ferrophosphorus, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala. (24 per cent)	122.50

*These prices contract; spot $5 higher.

Scrap

Strength and Waiting Attitude Marks Situation — Prices Are Strengthened in Some Centers

CONSIDERABLE buying by steel mills is being done in some centers, while the market in general is in a cautious mood. Consumption is heavier and indications are for even larger melt. Recent railroad offerings have gone at higher prices and the market is awaiting current railroad selling as a further indicator.

Pittsburgh, Aug. 28.—Iron and steel scrap is quiet in this district, both sellers and consumers playing a waiting game. Dealers are not active in obtaining business owing to the difficulty experienced in covering. Offerings of scrap continue moderate. All prices are firm and some dealers regard the $16 price on heavy melting steel as the minimum. Railroad lists scheduled to appear the first part of September are expected to determine the future price trend. Most mills are fairly well supplied with scrap for the next few weeks and are not expected to actively enter the market until the actual trend of prices is more clearly seen.

The Pennsylvania railroad scrap list on which bids close at Philadelphia, Sept. 6, totals 37,865 tons, including 6950 tons of heavy melting steel, 8875 tons of rails, and 6250 tons of unsorted steel car and locomotive tender material. The auxiliary list totals 3300 tons.

Boston, Aug. 28.—A substantial tonnage of heavy melting steel was shipped out the past week to Pittsburgh mills. The price holds well at $9.25 to $9.75. Movement in this line

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except Detroit where dealers' buying prices are shown

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	$10.00 to 10.50
Boston, dealers	9.25 to 9.75
Buffalo, No. 1	13.75 to 15.25
Buffalo, No. 2	12.25 to 12.75
Chicago	12.75 to 13.25
Cincinnati, deal.	11.50 to 12.00
Cleveland, No. 1	13.00 to 13.50
Cleveland, No. 2	12.25 to 12.75
Detroit, No. 1	10.50 to 11.00
Eastern Pa.	13.00
Eastern Pa., No. 2	11.00 to 11.50
Bethlehem deliv.	13.00
N. Y., deal., R. R.	9.25 to 9.85
N. Y., deal., yd.	7.00 to 8.00
Pittsburgh, No. 1	15.50 to 16.00
St. Louis, No. 1	12.00 to 12.50
St. Louis, No. 2	11.00 to 11.25
Valleys, No. 1	14.00 to 14.25

COMPRESSED SHEETS

Buffalo	12.25 to 12.75
Chicago	11.50 to 12.00
Cleveland	12.25 to 12.75
Detroit	10.25 to 10.75
Pittsburgh	15.50 to 16.00
Valleys	14.00 to 14.50
E. Pa. new mat.	11.50

BUNDLED SHEETS

Buffalo	8.25 to 8.75
Cincinnati, deal.	9.50 to 10.00
Cleveland	11.50 to 12.00
Eastern Pa.	10.50 to 11.00
Pittsburgh	13.75 to 14.25
St. Louis	7.75 to 8.25

SHEET CLIPPINGS, LOOSE

Chicago	7.50 to 8.00
Cincinnati	8.75 to 9.25
Detroit	7.00 to 7.50
St. Louis	7.75 to 8.25

STEEL RAILS, SHORT

Birmingham	10.50 to 11.00
Boston	8.00 to 9.00
Buffalo	16.00 to 16.50
Chicago	15.25 to 15.75
Cincinnati, deal.	15.75 to 16.25
Detroit	11.00 to 11.50
St. Louis	15.00 to 15.50

STOVE PLATE

Birmingham	12.00 to 12.50
Boston, consumers	10.00
Buffalo	13.50 to 14.00
Chicago, net	11.50 to 12.00
Cinn., deal., net	8.00 to 8.50
Cleveland	12.00 to 12.50
Detroit, net	10.75 to 11.25
Eastern Pa.	11.50 to 12.00
N. Y., deal., mill	7.75 to 8.25
Pittsburgh	11.50 to 12.00
St. Louis	11.00 to 11.50

SHOVELING STEEL

Chicago	12.75 to 13.25
Pittsburgh	11.00 to 11.50
St. Louis	11.00 to 11.25

KNUCKLES, COUPLERS SPRINGS

Buffalo	15.00 to 15.50
Chicago	14.50 to 15.00
Eastern Pa.	15.50 to 16.00
Pittsburgh	16.50 to 17.00
St. Louis	12.00 to 12.50

LOW PHOSPHORUS

Buffalo, billet and bloom crops	16.00 to 16.50
Cincinnati, deal.	12.75 to 13.25
Eastern Pa.	17.50 to 18.50
Pitts. billet and bloom crops	19.00 to 19.50
Cleve. billet and bloom crops	17.00 to 17.50

FROGS, SWITCHES, GUARDS

Chicago	13.50 to 14.00
St. Louis	12.50 to 13.00

ANGLE BARS—STEEL

Buffalo	14.00 to 14.50
Chicago	15.00 to 15.50
St. Louis	12.50 to 13.00

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	9.50 to 10.00
Boston, dealers	8.50 to 9.00
Buffalo, No. 1	11.00 to 11.50
Buffalo, No. 2	14.00 to 14.50
Chicago, No. 1	12.60 to 13.15
Chicago, No. 2	12.75 to 13.25
Cinn., No. 2	11.50 to 12.00
Eastern Pa.	14.50
N. Y., No. 1 deal.	11.00 to 11.50
Pittsburgh, No. 1	12.00 to 12.50
Pittsburgh, No. 2	15.50 to 16.00
St. Louis, No. 1	9.00 to 9.50
St. Louis, No. 2	11.00 to 11.50

WROUGHT PIPE

Boston, dealers	8.00 to 8.50
Eastern Pa.	13.00
Buffalo	12.00 to 12.50
New York, deal.	8.75 to 9.25

YARD WROUGHT

Boston	8.00 to 8.50
Eastern Pa.	14.00 to 14.50

BUSHELING

Buffalo	12.25 to 12.75
Chicago, No. 1	11.00 to 11.50
Chicago, No. 2	8.50 to 9.00
Cinn., No. 1 deal.	10.50 to 11.00
Cinn., No. 2	5.50 to 6.00
Cleveland, No. 2	9.25 to 9.50
Detroit, No. 1	9.75 to 10.00
St. Louis, No. 1	9.00 to 9.50
Detroit, mixed	7.25 to 7.50

MACHINE SHOP TURNINGS

Birmingham	8.00 to 9.00
Boston	5.00 to 5.50
Buffalo	7.00 to 7.50
Chicago	7.00 to 7.50
Cincinnati, deal.	8.00 to 8.50
Cleveland	7.75 to 8.25
Detroit	5.50 to 6.00
Eastern Pa.	10.50
New York, deal.	6.50 to 7.00
Pittsburgh	10.00 to 10.50
St. Louis	7.00 to 7.50

MIXED BORINGS, TURNINGS
For blast furnace use

Boston, dealers	5.50 to 6.00
Buffalo	9.50 to 10.00
Cincinnati, deal.	8.00 to 8.50
Cleveland	9.25 to 9.50
Detroit	7.50 to 7.75
Eastern Pa.	9.50 to 10.00
New York, deal.	5.75 to 6.25
Pittsburgh	11.00 to 11.50

CAST IRON BORINGS

Birmingham, chem.	13.00 to 13.50
Birmingham, plain	8.00 to 9.00
Boston, chem.	9.50 to 10.00
Boston, dealers	5.50 to 6.00
Buffalo	9.50 to 10.00
Chicago	9.25 to 9.75
Cincinnati, deal.	8.00 to 8.50
Cleveland	9.25 to 9.75
Detroit	7.50 to 7.75
Eastern Pa.	10.50 to 11.00
Eastern Pa., chem.	14.50 to 15.00
New York, deal.	5.75 to 6.25
Pittsburgh	11.00 to 11.50
St. Louis	8.25 to 8.75
Valleys	13.50

PIPES AND FLUES

Chicago, net	8.50 to 9.00
Cincinnati, deal.	7.50 to 8.00
St. Louis	9.00 to 9.50

RAILROAD GRATE BARS

Buffalo	11.25 to 11.75
Chicago, net	11.25 to 11.75
Cincinnati	9.00 to 9.50
Eastern Pa.	11.50 to 12.00
New York, deal.	7.50 to 8.00
St. Louis	11.00 to 11.50

FORGE FLASHINGS

Boston, dealers	7.50 to 8.00
Buffalo	11.50 to 12.00
Chicago	9.00 to 9.50
Cleve., over 10 in.	11.50 to 12.00
Detroit	9.00 to 9.50
Pittsburgh	12.00 to 12.50

FORGE SCRAP

Boston, deal	5.50 to 6.00
Chicago	15.50 to 16.00
Eastern Pa.	11.00 to 11.50

ARCH BARS AND TRANSOMS

Chicago, net	20.00 to 20.50
St. Louis	18.25 to 18.75

Iron, Steel Works Scrap

AXLE TURNINGS

Boston, deal	6.75 to 7.00
Buffalo	11.50 to 12.00
Chicago	9.75 to 10.25
Cleveland	12.00 to 12.25
Eastern Pa.	11.00 to 11.50
Pittsburgh	13.50 to 14.00
St. Louis	9.50 to 10.00

STEEL CAR AXLES

Birmingham	16.00 to 17.00
Boston, ship point	14.00 to 14.25
Buffalo	16.50 to 17.00
Chicago	17.65 to 18.20
Cleveland	16.00 to 16.50
Eastern Pa.	19.00 to 20.00
Pittsburgh	18.00 to 18.50
St. Louis	18.00 to 18.50

SHAFTING

Boston, ship. point	12.00 to 12.50
Chicago	17.35 to 17.90
Eastern Pa.	16.50 to 17.00
New York, deal.	13.50 to 14.00
St. Louis	16.50 to 17.00

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	12.00 to 12.50
Boston, con.	14.00 to 14.50
Buffalo, iron	12.25 to 12.75
Buffalo, steel	15.50 to 16.00
Chicago, iron	13.00 to 13.50
Chi., rolled steel	16.00 to 16.50
Cincinnati	11.50 to 12.00
Eastern Pa. cast.	15.50 to 15.75
Eastern Pa. rolled	14.75 to 15.25
N. Y., iron, deal.	11.50 to 12.00
Pittsburgh, iron	15.00 to 15.50
Pittsburgh, steel	16.00 to 16.50
St. Louis, iron	13.00 to 13.50
St. Louis steel	13.00 to 13.50

NO. 1 CAST SCRAP

Birmingham, cup.	13.00 to 13.50
Buffalo	14.25 to 14.75
Boston, textile	13.25 to 13.50
Buffalo	14.25 to 14.75
Chicago, mach.	15.95 to 16.50
Chicago, railroad	14.55 to 15.10
Chicago, agri.	14.30 to 14.85
Cincinnati, mach. cupolas, net deal.	14.50 to 15.00
Cleveland, cupola	15.50 to 16.50
Detroit, net	12.25 to 12.75
Eastern Pa. cupola	15.50 to 16.00
N. Y., cup., deal.	13.00 to 13.50
Pittsburgh, cupola	14.25 to 14.75
San Fran., del.	20.00 to 21.00
Seattle	14.50 to 15.00
St. Louis	13.00 to 13.50
Valleys	16.50 to 17.00

HEAVY CAST

Boston	10.50 to 11.00
Buffalo, breakable	11.50 to 12.00
Cleve., breakable	12.25 to 12.50
Detroit, auto., net	17.00 to 18.00
Detroit mach., net	12.75 to 13.25
Eastern Pa.	15.00 to 15.50
New York, deal.	11.50 to 12.00
Pittsburgh	12.25 to 12.75

MALLEABLE

Boston, railroad	13.50 to 14.50
Buffalo	14.75 to 15.25
Chicago, agri.	12.25 to 12.75
Chicago, railroad	13.00 to 13.50
Cinn., R. R., deal	12.00 to 12.50
Cinn., agri., deal.	10.50 to 11.00
Cleveland, agri.	15.00 to 15.50
Cleveland, rail.	15.00 to 16.00
Detroit, auto	14.50 to 15.00
Pittsburgh, rail.	14.00 to 14.25
St. Louis, agri.	11.50 to 12.00
St. Louis, rail.	11.50 to 12.00

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	10.50 to 11.00
Boston, dealers	9.50 to 10.00
Buffalo	13.50 to 14.00
Chicago	15.50 to 16.00
Eastern Pa.	14.50 to 15.00
New York	10.50 to 11.00
Pittsburgh district	16.00 to 16.50
St. Louis	13.00 to 13.50

LOCOMOTIVE TIRES

Chicago, No. 1	13.50 to 14.00
Chicago, cut	16.00 to 16.50
St. Louis, No. 1	11.75 to 12.25

LOW PHOS. PUNCHINGS

Chicago	14.50 to 15.00
Pittsburgh	16.00 to 16.50

was better than in any other, though a fairly good movement in other lines is reported generally.

New York, Aug. 28.—Some dealers here have advanced buying prices on yard steel, stove plate for mill consumption and wrought pipe, the advance in the latter being the first in some time. Fresh consuming demand is far from brisk, although there appears a scarcity of some grades. The tendency in other grades is toward steadiness, although there appears more strength than weakness.

Buffalo, Aug. 28.—On account of Bethlehem's low offer for heavy melting steel and purchases here or outside at $13.75, and buying by other consumers at considerably higher prices, there is an approximate range of $1.50 in actual current prices. Bethlehem's purchases are large but are not being checked if material is offered at the buyer's price, nor are deliveries being limited. Stove plate, No. 1 cast and malleable have been sold in fair sized quantities at prices fractionally above those of former transactions.

Cincinnati, Aug. 28.—Scrap prices and movement on specifications have picked up this week and a general advance of 25 to 50 cents has been made. Small sales have increased due to the conditions shown by railroad sales last week, all of which were absorbed at higher prices than July.

St. Louis, Aug. 28.—While actual trading in iron and steel scrap has not expanded to impressive volume, all classes of users are taking more interest and the undertone is firmer than in several months.

An east side mill purchased a tonnage of steel specialties, estimated at 5000 to 6000 tons, and this with minor tonnages by other melters has improved the situation. Some September inquiry has come out, and melters are tentatively casting about for fourth quarter prices.

Birmingham, Ala., Aug. 28.—Better feeling is noted, with greater activity in heavy melting steel, stove plate and No. 1 cast. Quotations are unchanged though dealers are selling steel reluctantly at $10.50 to $10.75, delivered.

Toronto, Ont., Aug. 28.—Old material sales were marked by general improvement during the past week or ten days. Consumers are showing more interest and inquiries are out for good tonnages both for spot and future delivery. In the Montreal market business is stronger on domestic consumption account and shipments to United States buyers continue in good volume. Prices are firm but unchanged in both markets.

Cleveland, Aug. 28.—Shipments of iron and steel scrap continue at a brisk rate but new buying is limited. With pig iron quotations being advanced and with prices of finished steel tending to rise some scrap dealers anticipate a stronger market. Some steelworks in this district have accumulated large stockpiles. Under these conditions mills are not disposed to offer higher prices.

Chicago, Aug. 28.—Iron and steel scrap market is strong, although sales are limited. Recent transactions include short steel rails at $15.25 to $15.75, couplers and knuckles at $14.50 to $15, frogs and switches at $14 to $14.50, and machine shop turnings at $7 to $7.50.

Philadelphia, Aug. 28.—Iron and steel scrap market reflects a good volume of buying in scattered lots. Prices are tending upward.

Canadian Scrap

Dealers' Buying Prices

MONTREAL

Per Gross Ton

Iron axles	$22.00
Steel axles	20.00
Car wheels	16.00
Stove plate	13.00
Wrought pipe	5.00
Turnings	5.00
Heavy melting steel	7.00

TORONTO

Steel axles	13.50 to 14.00
Iron axles	15.50 to 16.00
Heavy melting steel	8.00 to 8.50
Turnings	6.50 to 7.00
No. 1 mach. cast (net)	14.50 to 15.00
Malleable, (net)	12.50 to 13.00
Stove plate (net)	8.50 to 9.00

Buffalo at 94 Per Cent

Buffalo, Aug. 28.—Steelworks operations here are at their high point of the season, it being estimated open-hearth production is at 94 per cent and subject only to necessary repairs for continuation at or near this rate. Unfilled tonnage has increased greatly this month with prospect of record steel production for this year in September.

Antimony Rate Upheld

Washington, Aug. 28—Rates on antimony, in pigs, slabs, or blocks from New York and other north Atlantic ports, including Norfolk and Newport News, to Chicago and St. Louis, have been found not unreasonable or otherwise unlawful by the interstate commerce commission in a decision in the case of the Federated Metals Corp. against the Pennsylvania railroad company. The complaint has been dismissed.

Semifinished

Heavy Specifications Giving Mills Substantial Backlogs—Prices Are Holding Steady

SPECIFICATIONS for sheet bars, billets and slabs are the largest they have been in months, and makers are accumulating substantial backlogs. A number of the leading producers have made arrangements with their regular customers for fourth quarter supplies at the prevailing market prices at time of delivery. The $33 figure has not been quoted for billets and slabs.

SEMIFINISHED STEEL PRICES, PAGE 530

Youngstown, O., Aug. 28.—Shipments are being well maintained by producers on billets, sheet bars and slabs, since strip and most sheet mills are active. Reaffirmation of the price of sheet bars at $33, Youngstown and Pittsburgh, for fourth quarter has been accepted readily by consumers, although there still appears to be some question as to the maintenance of the $33 valley price for sheet bars, billets and slabs, alike. This question may be ironed out within the next few days when specifications will be due for delivery during October.

Cleveland, Aug. 28.—Specifications for sheet bars, billets and slabs, are increasing, and mill backlogs are the largest they have been in many months. The leading independent merchant producer here continues to operate 13 of its 14 open hearths. This rate was begun early this year and is considered better than 100 per cent of normal operation. Prices are firm.

Chicago, Aug. 28.—Little change in demand for semifinished steel products has been noticed during the past week. The range for rerolling billets, 4 x 4-inch, is $32 to $33, Chicago. Forging billets are $38. Sheet bars appear to be somewhat firm at $35.

Alloy Base Increase $2 for New Business

Cleveland, Aug. 28.—Leading producers of alloy steels have increased the base price of their products $2 a ton. These interests announce the new level of 2.75c, base, for alloy quality bars, to large buyers, effective immediately. Although tonnage on contract for third quarter will continue to be shipped against the price of 2.65c, all new business and contracting for the fourth quarter will be conducted on the higher schedule. No change was made in the alloy differentials.

J. A. Jeffrey Is Dead

Columbus, O., Aug. 28.—J. A. Jeffrey, 91, chairman of the Jeffrey Mfg. Co., manufacturer of mining and industrial machinery, died here yesterday.

Bars

Shipments Being Deferred as Backlogs Increase—Demand Is Steady—Prices Are Firm

SPECIFICATIONS and buying show no slackening in important producing centers and consumers find it increasingly difficult to obtain prompt delivery. Mills are two to three weeks behind in some sizes. Quotations of 1.90c, Pittsburgh, and 2.00c, Chicago, are being held and tonnages specified by Sept. 10. August specifications are exceeding the July total.

BAR PRICES, PAGE 529

Chicago, Aug. 28.—Sustained demand for soft steel bars has been one of the most encouraging features of the steel markets in the Middle West. August tonnages exceed the July rate. Demand is well balanced, from a variety of industries. New models are causing automobile makers in a number of instances to press bar makers for deliveries. Deliveries range from a few days to three weeks, depending largely upon the mill schedules.

For third quarter delivery steel bar prices are firm at 2.00c, Chicago. In a few instances 2.10c has been quoted on fourth quarter business and it seems likely that a $2 advance will prevail on most tonnage during last quarter. Bar mill operations are about 75 per cent. Rail steel bars are actively demanded for construction work. Mills are operating steadily. Prices are 1.85c to 1.90c, Chicago Heights.

Buffalo, Aug. 28.—There is growing tendency to demand 2.00c, Lackawanna, as the going price for bars. The trade has been notified, although probably unofficially, that no last quarter bar or shape business will be booked below 2.10c, Lackawanna. Some orders are reported being placed at this price.

Philadelphia, Aug. 28.—Consumers are beginning to sound out the steel bar market for the fourth quarter. So far the mills have not quoted definitely on quantities except that their asking price for the fourth quarter continues 2.00c, base, Pittsburgh. Much depends on what price is named as if mills stick to 2.00c consumers undoubtedly would specify heavily against third quarter contracts. Another point on which consumers asking information is whether mills will hold to their original intention to observe Sept. 10 as the final specification date for third quarter contracts. In the meantime, all mills now refuse to quote under 1.90c, Pittsburgh, on current business. Incidentally steel bar specifications in August exceed the July total and exceed any August in several years.

Pittsburgh, Aug. 28.—Some difficulty is being experienced by consumers of soft steel bars in obtaining desired shipments, mills in certain instances deferring shipments from two to three weeks. Specifications show no signs of slackening. The 1.90c, Pittsburgh price is being held firmly on all current orders, with producers insistent that material against these orders be specified out by Sept. 10 for shipment before the end of the quarter.

Youngstown, O., Aug. 28.—Signs appear that the fourth quarter quotation of 2.00c, Pittsburgh, on steel bars will do considerable to make good the present 1.90c maximum, while carload sales at the new price are expected to be made shortly. Independent bar mill activity is gaining each week as the volume of new business expands modestly but steadily. Announcement of the new extra list on chemical specifications for bars is meeting with encouraging response from buyers who now have a definite schedule of bar mill extras before them and they find about as many declines among them as increases.

Cleveland, Aug. 28.—Though automotive needs tend to diminish moderately, the volume of soft steel bar demand continues to outrun that of last August. In some cases deliveries are more deferred—though not seriously so—than consumers would like. The trend toward a higher price level is unmistakable and 1.90c, Cleveland or Pittsburgh mill, is generally quoted.

Bar Iron Wages Steady

Bar iron prices in July and August averaged 1.90c a pound, the same as in the two preceding months, according to report from S. C. Leonard, representing the Western Bar Iron association. This was determined at a meeting with representatives of the Amalgamated Association of Iron, Steel and Tin Workers in Pittsburgh this week. Bar iron mill wages, therefore, will remain unchanged through September and October. Following is a comparison of sales prices, on which wages have been based:

	1928	1927	1926	1925	1924
Jan.-Feb.	1.85c	1.95c	2.00c	2.00c	2.35c
Mar.-Apr.	1.85c	1.95c	2.05c	2.35c	2.35c
May-June	1.90c	1.95c	2.00c	2.05c	2.25c
July-Aug.	1.90c	1.95c	2.00c	1.95c	2.15c
Sept.-Oct.	.....	.....	1.90c	2.00c	2.10c
Nov.-Dec.	.....	.....	1.85c	2.00c	2.05c
Yearly av.	.....	.....	1.90c	2.00c	1.99c	2.21c

The direct process of extracting iron from ore was practiced in the French Pyrenees as early as 1293. The product was not homogeneous.

Plates

Specifications Continue Heavy—Mills Put "Deadline" on Buying at Present Prices

SPECIFICATIONS for plates are heavy, though the volume of new busness is light. The closing date for third quarter buying at 1.90c, base, Pittsburgh, is Sept. 10, while Chicago mills will draw the line at 2.00c, sometime between Sept, 10 and 15. Texas & Pacific placed 2500 tons of tank plate work with a Kansas City fabricator.

PLATE PRICES, PAGE 529

Pittsburgh, Aug. 28.—Plate specifications continue surprisingly high for this time. Most tonnage emanates from river barge awards. Oil country demands for plates for tankage work have been comparatively light. Skelp mills continue to benefit from heavy line pipe awards. Plate mills generally quote 1.90c, Pittsburgh, with emphasis that this price is good only until Sept. 10. The Mississippi River commission, Memphis, has awarded the American Bridge Co., Riter-Conley Co. and Dravo Contracting Co., 30, 31 and 32 barges, respectively. For these barges, 10,700 tons of plates and shapes are required. The barges are to be delivered by Jan. 1. The bid of the Dravo Contracting Co. was $10,200 per barge; the Riter-Conley Co., $10,263; and the American Bridge Co., $10,440.

Philadelphia, Aug. 28.—Plate demand is well maintained. The current price generally is 2.00c, Coatesville, for this district. On feelers for fourth quarter, mills quote 2.15c, Coatesville. Little forward business has been placed.

Chicago, Aug. 28.—While a fair volume of plate tonnage is being placed, plate makers still complain of the absence of heavy tonnage to round out their mill schedules. New buying is coming in at a rate which approximately equals shipments. The Texas & Pacific railroad has placed 2500 tons of tank plate work with the United Iron Works of Kansas City, and during the past week some 2000 tons of miscellaneous tank plates have been purchased. Mills believe specifications will increase steadily from now on. The closing date for third quarter buying

ranges between Sept. 10 and Sept. 15 for shipments to be made on or before Sept. 30. For current business steel plates are 2.00c, Chicago, on fair size tonnages.

CONTRACTS PLACED

300 tons, plates and shapes, three fuel barges for Union Barge Line, to Midland Barge Co., Midland, Pa.

133 tons, 15,000-gallon hemispherical bottom elevated tank, and two 25,000 cubic foot lift type gasholders, United States government helium plant, Amarillo, Tex., to Chicago Bridge & Iron Works.

CONTRACTS PENDING

330 tons, 32-inch pipeline, Tacoma, Wash.; Birchfield Boiler Co. low bidder.

Iron Ore

Increasing Pig Iron Demand May Develop More Ore Tonnage

IRON ORE PRICES, PAGE 530

Cleveland, Aug. 28.—Ore producers are watching developments in the pig iron market to determine if increasing demand for iron will be reflected in purchases of ore. Some of the merchant blast furnace interests that have been idle for months also are studying the situation, and if market conditions warrant they may start operations, with a consequent demand for ore. Any additional demands on steelworks would not affect the merchant ore market, as the steelworks would merely have to call for larger supplies from their associated sources.

It is reported from Chicago that in the storm there last week an ore bridge at the plant of the Youngstown Sheet & Tube Co. was blown down, with damage estimated at $100,000.

Canadian Auto Output Off in July

Washington, Aug. 28.—Production of passenger cars and trucks in Canada in July as reported to the department of commerce by the dominion bureau of statistics declined slightly from June. July production was 20,122 passenger cars and 5104 trucks, compared with June production of 25,341 passenger cars and 3058 trucks.

Alloy Steel Use Large

Chicago, Aug. 28.—Consumption of alloy steel is being maintained at a satisfying rate, considerably in excess of the usual August demand. Differentials inaugurated some months ago are holding without exception. Prices are based on 2.75c, Pittsburgh-Cleveland.

Pipe

Line Pipe Awards Continue Swelling Mill Backlogs—Cast Demand Is Easier

SEAMLESS pipe requirements for casing and line pipe for the oil country continue at a high rate; those for welded pipe are still satisfactory but tend to decline. Three new projects, which may not mature until early 1929, are being figured on. Cast iron pipe lettings in the Chicago district are not so brisk. At New York four jobs in the past week called for 10,000 tons.

PIPE PRICES, PAGE 530

Pittsburgh, Aug. 28.—Seamless pipe demand for oil country use continues exceptionally good, while sales of welded pipe, still satisfactory, have tapered slightly. Of the 36,000 tons of 18-inch pipe for the gas line from Fowler, La., to Memphis, Tenn., negotiated through Ford, Bacon & Davis, New York, approximately 28,500 tons, will be rolled by the National Tube Co. and 7500 tons by Spang, Chalfant & Co. The Sinclair Oil Co. is understood still to have the 42,000 tons of 8, 10 and 12-inch pipe for a line from Oklahoma to Whiting, Ind., to award. Early action is looked for upon the gas line from the Wyoming fields to Omaha, Nebr., projected by interests identified with the Ohio Fuel Gas Co., of which George W. Crawford is president. Lines by the Marland Refining Co., Independent Oil & Gas Co. and Transcontinental Oil Co. are in the formative stage but may not be placed this year.

Standard merchant pipe demand continues in good volume despite the heavy stocks carried by jobbers. Pipe prices generally are unchanged.

New York, Aug. 28.—The placing of more than 10,000 tons for four projects in this district features an otherwise dull and listless cast pipe market. The general run of miscellaneous demand, sellers assert, is as slow as at any time this year, and at present the immediate outlook is far from promising. Hence, prices are weak, although unchanged.

Cleveland, Aug. 28.—Good specifications have come to pipe mills from this district, jobbers taking heavier tonnages. Demand for pipe for buildings continues as heavy as in preceding weeks, and requirements of manufacturers also are good. Prices are firm.

Chicago, Aug. 28.—Demand for cast iron pipe has tapered off materially in the past week. Few contractors have placed business and there have been no public lettings. Real estate activities in Detroit have been responsible for some miscellaneous tonnages. Centerline, Mich., will open bids Sept. 11 for 200 tons of 6 to 8-inch cast iron pressure pipe. Prices remain $34 to $35, Birmingham, for 6-inch and over, or $42.20 to $43.20, delivered Chicago.

Birmingham, Ala., Aug. 28.—All shops of cast iron pressure pipe makers here are operating steadily, in some instances on day and night turn five days the week. Quotations are firm, where quantity is purchased at $34 on 6-inch and over and in smaller lots at $35, the latter price being more frequent.

CONTRACTS PLACED

4500 tons, 60-inch Class A pipe, Atlantic City, N. J., to United States Cast Iron Pipe & Foundry Co.

3512 tons, cast pipe, Fairlawn, N. J., to United States Cast Iron Pipe & Foundry Co.

1700 tons, cast pipe, Valhalla, N. Y., to R. D. Wood & Co., through Marielli Contracting Co., Rye, N. Y.

1504 tons, 4 to 12-inch Class C, Weyerhaeuser Timber Co., Longview, Wash., to American Cast Iron Pipe Co.

1000 tons, six to 20-inch cast pipe, Brooklyn, N. Y., for the department of water supply, New York, to United States Cast Iron Pipe & Foundry Co.; this was awarded through a contractor.

469 tons, 6 to 30-inch Class C, improvement Forty-second avenue South, Seattle., to Tony Jakaboni.

318 tons, 2-inch Class B, Los Angeles, to Pacific States Cast Iron Pipe Co.

188 tons, 4 to 8-inch Class B and C, paving 345th avenue, Seattle, to Fiorito Bros.

115 tons, 8-inch Class B, Santa Cruz, Calif., 91 tons to Grinnell Co. and 24 tons to American Cast Iron Pipe Co.

100 tons, Medford, Mass., 8-inch pipe, awarded to R. D. Wood & Co.

CONTRACTS PENDING

42,000 tons, 8, 10 and 12-inch seamless for Sinclair Oil Co., oil line from Oklahoma to Whiting, Ind.

1210 tons, 32-inch pipe for East 115th and Taylor streets, Tacoma, Wash.; United States Cast Iron Pipe & Foundry Co., low bidder on cast iron pipe. Alternate bids on welded steel pipe.

1062 tons, Spring Valley Water Co., San Francisco; bids in.

258 tons, San Bernardino, Calif.; bids Aug. 28.

200 tons, Naval station, Newport, R. I., 6 to 16-inch pipe, bids opened Aug. 22.

178 tons, 4 to 10-inch Class B, improvement Mt. View drive, San Diego, Calif.; bids Sept. 10.

150 tons, Camp Devens, Ayer, Mass., 6 to 12-inch pipe, bids opened Aug. 27.

133 tons, 4 and 6-inch Class B, El Monte, Calif.; bids Sept. 4.

Import Less Chrome Ore

Imports of chrome ore in the United States in the first half of the year were 102,111 tons, a reduction of a little over 30,000 tons as compared with the first half of 1927. Imports of ferrochrome including some chromium metal and chromium vanadium in

the first half of the year were 778,749 pounds, compared with 854,715 a year ago. Exports of chrome ore from Rhodesia, South Africa, in the first half of the year were 121,647 tons, a decrease of about 20,000 tons from the first half of last year.

Bolts, Nuts, Rivets

Demand Continues Unusually High for Summer Season

NUT AND BOLT PRICES, PAGE 530

Chicago, Aug. 28.—Makers of bolts, nuts and rivets continue to operate at an unusually high rate for this season. Demand from the automotive industry continues strong, but shows a slight decline from the peak of a month or two ago. Despite the fact implement manufacturers are entering a season usually dull, their requirements for bolts, nuts and rivets are surprisingly large. Buying by tractor builders is excellent. Books for fourth quarter will be opened the first of the month. Prices are firm. Bolts and nuts are 70 off list, with small lots at 60 off. Structural rivets are 3.00c, Chicago, and small rivets 70 to 70 and 10 off.

Buffalo, Aug. 28.—There is good inquiry for bolts and nuts with the price firm at 70 off. Consumers are inquiring as to fourth quarter prices but are being told these have not been fixed.

Pittsburgh, Aug. 28.—Demand for bolts and nuts is holding to about the rate of the first part of August, being at a fairly high seasonal level. Rivet buying, however, still lags, with railroads indifferent. Prices continue firm at 70 off for bolts and nuts, and 2.90c for rivets. Operations are 60 to 65 per cent, with rivetmaking at the lower end of the range.

Tin Plate

Specifications Active but Seasonal Decline Appearing—Price Unchanged

TIN PLATE PRICES, PAGE 529

Pittsburgh, Aug. 28.—Tin plate specifications are fairly active, although signs of the beginning of the usual seasonal decline in canmakers' requirements are appearing. Production, however, is steady, with operations close to capacity. Sales to canmakers this year are expected to total close to a record level. Tin plate continues $5.25 per base box.

New York, Aug. 28.—No action has been taken by the military provisions bureau of the Japanese army on its recent inquiry for about 20,000 base boxes of tin plate.

The first blast furnace in the state of Illinois of which any record is preserved was a small charcoal furnace, 4 miles west of Elizabethtown in Hardin county, built in the year 1839.

Sheets

Fourth Quarter Prices About to Receive Real Test—Market Firm —Demand Continues Active

SHEET prices for fourth quarter will receive their "acid test" in the first week or ten days of September, when mills require specifications for that period. Makers anticipate little difficulty in firmly establishing the figures they have named. In the meantime specifications continue heavy, from a diversified list of consumers. Demand for full finished sheet is especially active.

SHEET PRICES, PAGE 529

Pittsburgh, Aug. 28.—Sheet specifications are well maintained, practically all consuming lines, with the exception of the railroad and allied interests, taking a normal volume. Automobile and implement makers continue active buyers, and radio manufacturers have been specifying heavier recently than in a number of weeks. Some stimulant to current buying is seen in the higher prices and reduction in cash discount named for the fourth quarter. Current business is being placed at 2.00c to 2.10c for blue annealed depending upon width, 2.65c for black, 3.45c to 3.55c for galvanized, and 4.00c for auto body. Some sellers have announced that orders for September delivery must be placed within the first week of that month. Operations are being well maintained, better weather conditions aiding mill production.

Buffalo, Aug. 28.—Operation of sheet mills here is ranging from 85 to 90 per cent. Unfilled tonnage is larger than at any time this quarter. The new prices of 2.75c, base, Pittsburgh, on black and 3.60c on galvanized sheets will be effective Sept. 10 for all fourth quarter delivery.

Philadelphia, Aug. 28.—Sheet demand continues good, and prices generally are unchanged. On blue annealed the usual price now is 2.00c, base, Pittsburgh, with only a small percentage of the sales at 2.10c. Black sheets are 2.65c, with occasional sales at 2.60c. Galvanized sheets are 3.40c to 3.50c.

Youngstown, O., Aug. 28.—Almost all local sheet mills are beginning to accumulate orders for various grades, although some others are not so fortunate as yet, two mills being idle this week at Niles. Pressure for deliveries from the automotive trade continues especially heavy for autobody material, with capacity production in sight for some makers, six weeks ahead. The proposed new railroad freight rates have not been considered seriously as yet. Price advances for certain grades for fourth quarter appear likely to be tested shortly, as specifications for October are expected to be placed with mills by Sept. 10. Independent sheet mill operations in this district are around 83 per cent against 86 per cent last week.

Chicago, Aug. 28.—For the first time in some months sheet mills are enjoying backlogs ranging from two to three weeks for galvanized to three to four weeks for blue annealed. From a tonnage standpoint, the mills are running at approximately 75 per cent. The market is displaying considerable activity, due largely to the desire of consumers to specify out all the tonnage on contract before the reduced cash discount rate goes in effect Oct. 1. Books for fourth quarter business will be opened about Sept. 15. Prevailing quotations are: Blue annealed, 2.15c to 2.25c; galvanized, 3.65c to 3.75c; and black, 2.80c to 2.90c, f.o.b., Chicago.

St. Louis, Aug. 28.—The sheet situation continues moderately satisfactory from the seller's viewpoint. New orders are coming in at a fair rate, and from a broadly diversified list of consumers. While individual purchases are not heavy, the aggregate makes a good total. The Granite City Steel Co., steel division of the National Enameling & Stamping Co., has announced its sheet prices for fourth quarter as follows: One pass cold roll, 2.85c; blue annealed, under 45 inches wide, 2.10c; blue annealed 45 inches and over, 2.20c; galvanized, 3.60c. These quotations are f.o.b. Gary, Ind., basis. The Birmingham basis is 5 cents per 100 pounds over the Gary quotations.

Will Add Basic Furnace

Construction of an additional 150-ton open-hearth furnace has been started at the Riverside plant of the Otis Steel Co., Cleveland. This unit is the second of three which directors of the company authorized early this year. Charging of the first new furnace began in May. The unit now being built is expected to be put on gas in October and will give the Otis company a complement of seven basic steelmaking furnaces with an annual production of 600,000 tons. An addition to the soaking pit installation is nearing completion.

Castings Output Lower

Washington, Aug. 28.—Production of malleable castings in July totaled 54,384 tons, making a decline from the June total of 61,280 tons. Operations were at 59.9 per cent of capacity.

Structural Shapes

Moderate Demand Prevails But Aggregate of Small Orders Makes Large Total—Deliveries Being Deferred

BUILDING operations, so far as large projects are concerned, seem to be slacking as summer wanes. To compensate for this, small projects seem to be in larger number and keep the total well up. Sufficient of the latter are being booked to place some fabricators in the position of deferring deliveries. An advance of $2 per ton for fourth quarter material is being forecast and this is stimulating specification on tonnage already booked, for third quarter. No buying for the final quarter has been done, though some tentative inquiry has come out. Subway work in New York is being figured and involves considerable steel. Prices are firm and unchanged. The largest award of the week was 3100 tons for a hotel in New York.

STRUCTURAL SHAPE PRICES, PAGE 529

Chicago, Aug. 28.—Small orders for fabricated steel are in such volume that many shops now specify deliveries from three to six months. Fabricators, encouraged by this situation, are looking forward to a firmer price situation and believe this will be supported by the $2 a ton advance on structural shapes which has been announced for fourth quarter. Mills and fabricators alike believe the outlook for the remainder of the year is distinctly bright, although no spectacularly large tonnages are being figured. Specifications are coming in at a rate equal to or better than shipments. The proposed $2 a ton advance for the next period is expected to stimulate specifying up to Sept. 10 or Sept. 15, or whenever the mills set the deadline for shipments to be made prior to Sept. 30. Plain material is quoted at 2.00c, Chicago. Some interest is being shown in tonnages for fourth quarter, but most of it is dictated by curiosity rather than real intention of buying.

Boston, Aug. 28.—Structural business in the New England district remained quiet during the past week. The A. L. Smith Works was awarded 120 tons for the George White fund health unit, No. 4, which was the only contract of any size placed.

New York, Aug. 28.—Structural demand has been moderate, but with one award involving several thousand tons reported. An unusual number of relatively small bridge jobs are noted, fresh inquiries involving 2300 or 2400 tons and awards about the same. As previously noted, considerable subway work will come up for figures this week, including the 20,000-ton job on which bids will be opened Aug. 31.—A 3000-ton subway project was brought out today. Meanwhile, sentiment in the structural market is strong, with the outlook promising.

Philadelphia, Aug. 28.—Shape prices continue to move upward and a number of consumers who had buying at 2.01c, delivered, Philadelphia, are being told the price will be 2.06c, beginning Sept. 1. Only a small percentage of the trade is buying below 2.01c, delivered, but this percentage includes a number of fabricators who consume most of the shape tonnage in this district.

Pittsburgh, Aug. 28.—Specifications are fairly active for plain structural material but awards of the week have been restricted to small tonnages. Inquiry is light. Most fabricators are busier than a year ago. Current business is quoted at 1.90c, with 1.85c applying on contracts.

Awards Compared

	Tons
Awards this week	15,669
Awards last week	42,091
Awards two weeks ago	49,794
Awards this week in 1927	49,264
Average weekly awards, July	43,008
Average weekly awards, 1928	39,094
Total awards to date, 1927	1,266,001
Total awards to date, 1928	1,329,186

CONTRACTS PLACED

3100 tons, hotel, Forty-eighth street and Lexington avenue, New York, to Hedden Iron Construction Co.
1900 tons, mill building for Interstate Iron & Steel Co., to American Bridge Co.
1400 tons, pier sheds at pier No. 45, San Francisco, to Pacific Coast Steel Co.
1160 tons, office building, 145th and Franklin streets, Oakland, Calif., to Judson-Pacific Co.
1000 tons, column cores, Packard service station in West Fifty-fourth street, New York, to Levering & Garrigues.
700 tons, state office building, Trenton, N. J., to American Structural Steel Co.
600 tons, Jones' beach causeway, Long island, to Bethlehem Steel Corp.
500 tons, Reading railroad bridge, to Bethlehem Steel Corp.
500 tons, factory addition, Willys-Overland Inc., Toledo, O., to American Bridge Co.
500 tons, power plant for Indiana, to unstated bidder.
460 tons, remote delivery station for Strawbridge & Clothier, Philadelphia, to McClintic-Marshall Co.
450 tons, Marblemount state bridge, Skagit county, to Pacific Car & Foundry Co.
450 tons, Nugents state bridge, Whatcom county, to Pacific Car & Foundry Co.
300 tons, highway bridge, near Baltimore, to Dietrich Bros.
250 tons, hangar No. 4, Oakland, Calif., to Moore Drydock Co.
250 tons, Boston, new Back bay station of New Haven railroad.
218 tons, theater, Connellsville, Pa., to Bethlehem Steel Corp. through Griffith-Custer Steel Co., Johnstown, Pa.
200 tons, Second avenue south viaduct, Seattle, to Hofius Steel & Equipment Co.
200 tons, New Jersey state hospital addition, to Dover Boiler Works.
200 tons, state highway bridge, New Jersey, to American Bridge Co.
175 tons, East Liberty combination police and fire station, Pittsburgh, to Bethlehem Steel Corp.
170 tons, Boston, new store building, Newbury street.
166 tons, Terrace Arms apartment, Mt. Vernon, N. Y., to National Bridge Co., Jones & Laughlin junior beams specified.
150 tons new Wabash railroad freight house, St. Louis, to Stupp Bros. Iron Co.
150 tons, switch terminal, Commonwealth Edison Co., to Vierling Steel Works.
150 tons, Pennsylvania railroad bridge, to Bethlehem Steel Corp.
150 tons, New York, New Haven & Hartford railroad bridge, to Shoemaker Bridge Co.
120 tons, Boston, for George White Fund Health Unit No. 4, awarded to A. L. Smith Works.
100 tons, apartment, Ninth Ave. and Judah street, San Francisco, to Judson-Pacific Co.

CONTRACTS PENDING

11,000 tons, subway, section 1, route 108, New York, bids to be readvertised; Triset Contracting Co. was low at the last opening.
10,000 tons, Callowhill street warehouse for Reading railroad, Philadelphia.
8000 tons, garment building, Seventh avenue and West Thirty-eighth street, New York.
6000 tons, section 3, route 106, New York highways, LaRocca Construction Co. low bidder. Similar tonnage for each of two additional sections up Sept 14 and in October.
2500 tons, new plant for United States Gypsum Co., Chicago.
2000 tons, McCormick building project, Chicago.
1800 tons, American Bank building, New Orleans.
1600 tons, General Electric warehouse, Chicago.
1500 tons, Salvation Army headquarters, West Fourteenth street, New York; bids Sept. 5.
1000 tons, First Regiment armory, Chicago.
950 tons, 16-story apartment building, Washington Square, New York.
700 tons, addition to Hooker Chemical plant, Tacoma, Wash.; bids being taken.
700 tons, bridges for state of New York.
500 tons, Baltimore & Ohio bridges in Chicago district.
400 tons, state bridges, Pennsylvania.
400 tons, Circle theater, Frankford, Philadelphia.
300 tons, New York Central bridges, near Hastings, N. Y.
230 tons, Kalama river bridge, bids Sept. 4.
210 tons, Boeing airplane plant, Seattle; general contract to the Austin Co.
200 tons Wabash railroad station at Delmar avenue, St. Louis.
200 tons, highway bridges, Vermont.
170 tons, factory at Richvale, Calif., for Pacific Coast Paper & Pulp Co.; bids being taken.
150 tons, hospital addition, Oil City, Pa.; Keystone Engineering Co., Pittsburgh, general contractor.
150 tons, highway bridge, Washington.
130 tons, Pacific Coast Cement Co. plant, Seattle.
120 tons, Coweeman river bridge; bids Sept. 4.
100 tons for St. Michael and All Angels catholic church, St. Louis.
100 tons, Boston & Maine bridge.
Several hundred tons, Sailors' Snug Harbor,

38 East Tenth street, New York.
Several hundred tons, theater at Asbury Park, N. J.; Warren & Whetmore, New York, architects.
Unstated tonnage, Quesnel bridge, Fraser river, B. C.; bids Sept. 4.
Unstated tonnage, building for Camden Safe Deposit & Trust Co., Camden, N. J.

Labor Disputes in Leading Countries Reduced

Disruption of industrial activity through trade disputes has been on the decline throughout the world since 1920, according to an analysis made by the National Industrial Conference board, New York, on the basis of official reports from eight representative countries. A notable exception is Australia, where the number of workers involved in industrial disputes has changed little during the period under review, and in 1927 was the highest ever recorded.

The most turbulent years during the period 1919-1927 were 1919 and 1920. A total of 13,133,877 workers were thrown out of work by strikes or lockouts in the former year and 13,698,620 in the latter in the United States, Great Britain, France, Germany, Belgium, the Netherlands, Canada and Australia. Improved relations in the world's industries since that time are reflected in the following ratios of workers involved in strikes and lockouts in 1927 per thousand of population, as against the corresponding number in earlier years: In the United States, three per thousand of population as against 40 in 1919; in Great Britain, two as against 63 in 1919; in France two as against 37 in 1920; in Germany six as against 135 in 1920; in Belgium five as against 40 in 1920; in the Netherlands, two as against 10 in 1920; in Canada, two as against 16 in 1919; in Australia, 25 as against 19 in 1919-1920.

In Great Britain in 1919 a total of 34,970,000 working days was lost, and 26,570,000 days in 1920; in France, 18,110,352 in the former year, and 24,247,132 in the latter; in Germany, 48,067,180 and 54,206,942 respectively; in the Netherlands, 1,094,700 and 2,333,900, in Australia, 6,308,226 and 1,872,065; records of time lost for the other countries named are not available.

Consumers' Reserves of Soft Coal Drop

Consumers' stocks of bituminous coal on July 1 amounted to 41,700,000 tons, according to a survey just completed by the United States bureau of mines. In comparison with the amount reported on April 1, the date of the last previous survey, this is a decrease of 6,600,000 tons. On July 1, 1927, stocks of bituminous coal amounted to 63,400,000 tons.

Exports in the second quarter of 1928 averaged 270,000 tons. Home consumption for that period averaged 8,312,000 tons a week. In addition to stocks in hands of consumers, 6,204,000 tons of bituminous coal were on the docks of Lakes Superior and Michigan.

Concrete Bars

Many Small Orders Give Makers Good Aggregate Tonnage

WHILE individual orders for concrete reinforcing bars are not large, the number of small lots purchased is unusually heavy. This late season demand is noted in several districts. The current volume of business at Chicago exceeds that of 1927. Some of the mills are required to run double shift from time to time. Prices are steady.

REINFORCING BAR PRICES, PAGE 529

Chicago, Aug. 28.—A good volume of concrete reinforcing bars is being placed with Chicago mills. No large tonnages feature the market but the number of small orders is unusually heavy. Most of these orders range between 50 and 100 tons. The current volume exceeds the 1927 level and some of the mills find it necessary to run double shift from time to time. Rail steel bars are 1.85c and 1.95c, Chicago Heights, for road and bridge work, respectively. Billet bars appear firm at 2.30c, Chicago.

Boston, Aug. 28.—Tonnages of reinforcing bars continue in odd lots, but in the past week these aggregated some 350 tons. The largest of these was just under 100 tons for the Adams Paper Co. plant at Baldwinsville, Mass., and was placed with the Concrete Steel Co. It is expected the Hood plant addition at Charlestown, comprising one of the best tonnages overhanging the market will be placed this week. Prices continue to show a firm undertone.

Pittsburgh, Aug. 28.—Quiet prevails in the market for concrete reinforcing material. Inquiries and awards are in less volume and involve small tonnages. New business is moving generally at 1.90c, with 1.85c applying on contracts.

Buffalo, Aug. 28.—A late season spurt is noted in reinforcing bar business. New inquiry and orders amounting to more than 800 tons are reported this week, with more in prospect. Mill shipment lengths are available at prices as low as 1.90c, Pittsburgh, but on bars moved out of Buffalo stocks for local delivery the minimum is reported to be 2.415c.

CONTRACTS PLACED

746 tons for sewer construction in Yellowstone avenue, Borough of Queens, N. Y.; 346 tons to National Bridge Works; and 300 tons to Concrete Steel Co.
700 tons for buildings for Western Electric Co. at Kearny, N. J., to Joseph T. Ryerson & Son, through Austin Co.
600 tons for foundation for Western Union Telegraph Co. warehouse, New York, to Jones & Laughlin Steel Corp., through Turner Construction Co.
600 tons for express building being built by St. Louis Terminal Railway Association, St. Louis to Laclede Steel Co.
300 tons for remote delivery station, Strawbridge & Clothier, Philadelphia, to Truscon Steel Co.
280 tons, for Genesee garage, Buffalo, reported placed with Buffalo Steel Co.
260 tons for southwestern joint sewer district, St. Louis, to Missouri Rolling Mill Co.
255 tons, addition to Peck & Hills warehouse, to Northwest Steel Rolling Mills.
250 tons, addition to Frederick & Nelson warehouse; to Pacific Coast Steel Co. and Northwest Steel Rolling Mills.
200 tons for Harlem river tunnel subway section, New York City, to McClintic-Marshall Co., through George H. Flinn Corp.
200 tons, Simmons Bed Co. warehouse, San Francisco; bids bebing received.
200 tons, factory for Willys-Overland Co., Toledo, O., garage for Columbus Gas & Fuel Co., Columbus, O., and Grace Lutheran church, Fremont, O., to Building Products Co., Toledo.
155 tons, Spokane street bridge substructure, Seattle, to Northwest Steel Rolling Mills.
153 tons, pier sheds at pier No. 45, San Francisco, to Pacific Coast Steel Co.
145 tons, hospital at Eldridge, Calif., to Pacific Coast Steel Co.
125 tons for sewer construction in New Jersey, to Kalman Steel Co.
110 tons for First avenue school, Newark, N. J., to Tidewater Structural Materials Corp.
110 tons for Seward park high school, New York, to Carroll-McCreery & Co. Inc.
110 tons for Piermont hotel, Brooklyn, to Carroll-McCreery & Co. Inc.
108 tons, paving in Sacramento county, Sacramento, Calif., to unknown company.
100 tons for building for R. Hoe & Co. Inc., Dunellen, N. J., to Truscon Steel Co., through Wigton-Abbott Corp.
100 tons for store and office building, Summit, N. J., to Truscon Steel Co., through Wigton-Abbott Corp.
100 tons for Samuel J. Tilden school, New York, to Ferro Building Products Co., previously reported incorrectly as going to Tidewater Structural Materials Corp.
Unstated tonnage, 45 sewers, Philadelphia, to Taylor, Davis Co.

Awards Compared

	Tons
Awards this week	**5,907**
Awards last week	**2,835**
Awards two weeks ago	**6,123**
Awards this week in 1927	**3,759**
Average weekly awards, July	**5,103**
Average weekly awards, 1928	**7,068**
Total awards to date, 1927	**194,549**
Total awards to date, 1928	**240,305**

CONTRACTS PENDING

2000 tons for shore boulevard for Monmouth and Ocean counties, N. J.
1200 tons for building for B. B. Davis & Co., at Broome & Hudson streets, New York City.
525 tons, Bernal Cut project, San Francisco; bids Sept. 17.
400 tons, section 3, route 106, New York highways, LaRocca Construction Co. low bidder.

Similar tonnage for each of two additional sections up Sept. 14 and in October.
250 tons, for Buffalo State Normal school, Buffalo, bids this week.
190 tons, floors, Rand building, Buffalo, John W. Cowper Co., contractor.
100 tons, plant addition, Seattle Ice Cream Co., Seattle, Wash.; bids being received.

Refractories

Volume of Business Exceeds Year Ago—Prices Are Firm

REFRACTORIES PRICES, PAGE 530

Pittsburgh, Aug. 28.—Refractory manufacturers report receipt of a fair volume of business, sales by most interests being equal to or in excess of the rate a year ago. Prices are firm, with $43 quoted on first quality fire clay and silica brick. Chrome brick is in fair demand at $45 and magnesite brick is $65. Refractory interests state less material is being required per tonnage output of steel than was true five years ago, owing to the greater efficiency in the use of furnace equipment and the improved quality of brick. Consolidation of smaller power plants into large units also is tending to restrict consumption of refractories. Continued active operations in steelmaking are seen as indicating a fairly active last quarter for refractory makers.

World Manganese Output

Washington, Aug. 28.—Approximate world output of manganese ore with a metallic content of 30 per cent or more was 3,318,773 long tons, gross weight, during 1926, according to the minerals division, department of commerce. Of this total 93 per cent was produced by five countries which consume annually a comparatively small portion of their own output, 40 per cent by Russia, 30 by India, 11 by the Gold Coast, 8 by Brazil and 4 by Egypt.

At the same time 1.4 per cent of the world's total was produced in the United States, 1.33 in Spain and 1.26 in China. The remaining 3 per cent was produced by 20 other countries, of which Sweden, Cuba, Chile, Italy, Japan and Java are the more important.

Approximately 68 per cent of the total world output of manganese ore is consumed by seven industrial nations: United States 22 per cent, France 17, United Kingdom 10, Belgium 8, Germany 6, Japan 3 and Italy 2.

Alloy Steel at Capacity

Buffalo, Aug. 28.—Alloy steel manufacturers here are operating at a rate as close to maximum capacity as open-hearth production will permit. The outlook for the next month or two at least is by far the best of the year, it is stated.

In the year 1830 only 23 miles of railroads were in operation in the United States.

Rails, Cars

Inquiry for 45,000 Tons of Rails Issued by Chesapeake & Ohio—Equipment Orders Larger

AN INQUIRY from the Chesapeake & Ohio railroad for 45,500 tons of standard rails, with 9000 tons of tie plates and 5000 tons of angle bars featured the market. Rail mills and car builders look for a substantial volume of business this fall. The New York Central has awarded 55 locomotives and five tenders. Miscellaneous car business is fair.

RAILROAD TRACK PRICES, PAGE 530

Chicago, Aug. 28.—The Great Northern is inquiring for 1000 cars. The Chesapeake & Ohio has ordered 300 hopper bottom cars from Richmond Car Co., and 200 of the same type from American Car & Foundry Co. The American company also received orders in the past week for ten tank cars for the City Utilities Co., and two cabooses for the Midwest Utilities Co. One hundred underframes were placed with the North American Car Co. by the Chesapeake & Ohio railroad. The Barrett Co. ordered 15 tank cars from the General American Car Co.. Chesapeake & Ohio is inquiring for 45,500 tons of rails, 9000 tons of tie plates, and 5000 tons of angle bars. The bolt specifications have not been issued. During the past week four or five small lots of rails, totaling some 4000 tons, were placed for third quarter delivery. Track accessory buying is being maintained at a fair rate, mill operations holding up to a satisfactory level. Most of the orders are in lots ranging from 200, 300, and 400 tons up to as high as 1000 tons. The light rail situation is unchanged, buying being somewhat scattered.

New York, Aug. 28.—Featuring the eastern railroad equipment market is the award of 55 locomotives and five additional tenders by the New York Central. This business went to American Locomotive Co. The Erie railroad has bought a 300-horsepower oil-electric locomotive from the Ingersoll-Rand Co., the General Electric Co. and the American Locomotive Co. This is the fourth of these units purchased by the Erie.

Pittsburgh, Aug. 28.—The Chesapeake & Ohio railroad is inquiring for 45,500 tons of standard steel rails, presumably for delivery over the remainder of the year. This carrier has usually placed the bulk of its rails in the past with the Illinois Steel Co. and the Inland Steel Co. for rolling in the Chicago district, with the Bethlehem Steel Co. the possible maker of a small portion.

CAR ORDERS PLACED

Barrett Co., 25 tank cars to General American Car Co.
Barrett Co., 30 tank cars for carrying anhydrous ammonia, divided equally between General-American Tank Car Corp. and American Car & Foundry Co.
Chesapeake & Ohio, 100 underframes to North American Car Co.
Chesapeake & Ohio, 500 hopper bottom cars, 300 to Richmond Car Co. and 200 to American Car & Foundry Co.
City Utilities Co., ten tank cars to American Car & Foundry Co.
International Railways of Central America, 25 banana cars, to Magor Car Corp.
Midwest Utilities Co., two cabooses to American Car & Foundry Co.
North American Car Co., 100 steel underframes, to Pressed Steel Car Co.
Southern Pacific, four gasoline-electric cars, bodies for two to be furnished by Bethlehem Steel and for one by Pullman Car & Mfg. Corp., with power units to be constructed by Electro-Motive Co.; Standard Steel Car Co. will build one car which will be equipped with a Sterling-Westinghouse unit.
South Porto Rico Sugar Co., 20 flat cars and 10 cane cars, to Magor Car Corp.
Wabash, 10 hopper cars to American Car & Foundry.

LOCOMOTIVE ORDERS PLACED

Erie, 300-horsepower oil-electric locomotive, to American Locomotive, General Electric and Ingersoll Rand Companies.
National Railways of Mexico, six Mallet type locomotives to American Locomotive Co.
New York Central, 55 locomotives and five additional 15,000-gallon locomotive tenders, to American Locomotive Co.; of these 30 are passenger engines and the remainder freight.

CAR ORDERS PENDING

Anglo-Mexican Petroleum Co. Ltd., eight tank cars.
Bangor & Aroostock, two combination baggage and mail cars.
Great Northern, 1000 cars.

LOCOMOTIVE ORDERS PENDING

Algoma Central, two locomotives.

Price Study Continues

Washington, Aug. 28.—In connection with its inquiry on price bases, the federal trade commission reports the status as of Aug. 1 as follows:

"In this inquiry the commission is making an effort to discover the causes of the various systems of making prices, such as factory base, basing point, and delivered base. Along with this, of course, is a study into the actual and potential effects of the various price making systems."

The importation of wire into England was prohibited in 1465, but owiing to the inferiority of the home product the restriction was soon removed. A similar edict was imposed by Charles I of England in 1630.

Wire

Steady Buying and Unchanged Prices Are Features—Unusually Good Demand Continues

MANUFACTURERS of wire products utilizing plain wire are taking unexpectedly large tonnages and this is sustaining the market. Jobbers are buying nails more freely. Most orders are for small lots. Indications are that prices for fourth quarter will be the same as those now applying. Production is at steady rate, averaging close to 60 per cent.

WIRE PRICES, PAGE 530

Chicago, Aug. 28.—Surprisingly large demand for manufacturers' steel wire continues a feature of the mid-western market. The price seems exceptionally firm at 2.40c, Cleveland and Pittsburgh base. Jobber demand for wire nails has improved somewhat in the last few days. Prices are steady at $2.55, Cleveland and Pittsburgh base.

Worcester, Mass., Aug. 28.—Demand for wire holds steady, but there is little advance buying. The bulk of the business is in limited lots, but such orders are fairly numerous. The call for specialty materials leads, especially manufacturers wire. Prices for plain wire hold steady at 2.55c, Worcester base.

New York, Aug. 28.—Recent rumors that an advance on wire and nails was impending appear to be groundless. Mills in some instances have shown willingness to take fourth quarter business at current prices. Present prices are 2.40c, base, Pittsburgh, on wire and $2.55 on nails, while prices to retailers are $2.50 and $2.65, respectively. Demand, while not as good as in July, is unusually good for this season. In fact, August for some mills shows better bookings than in any August in years. A well informed estimate is that operations of wire mills throughout the country are at about 60 per cent, while operations on nails are 55 to 60 per cent.

Pittsburgh, Aug. 28.—Wire and wire products are firm at 2.40c, Pittsburgh, for plain wire and $2.55 for wire nails. Manufacturers' wire is moving actively although nail demand lags slightly. Most sellers are expected to open their books soon for fourth quarter, with current prices prevailing. Some increase in buying by jobbing interests is expected in the near future, stocks in certain instances running low.

Cleveland, Aug. 28.—Demand for wire from the manufacturing industries is heavy. Specifications against third quarter contracts continue heavy. Spot orders of the week were fair. Wire prices are firm at 2.40c, Cleveland. Nails were rather quiet during the week, due, to some extent, to jobbers unloading stocks accumulated at lower than present prices. Nails are being quoted $2.55 per 100-pound keg, Cleveland base, by manufacturers. A few cases of shading to $2.50 by jobbers continue to be uncovered, but the market is stronger than in months past.

Complain Rates Unjust

Washington, Aug. 28.—A complaint has been filed with the interstate commerce commission by the American Steel Derrick Co., Tulsa, Okla., against the Atchison, Topeka & Santa Fe Railway Co. in which the derrick company alleges unreasonable rates on shipments of structural iron and steel from Muskogee, Okla., fabricated at that point, to points in Texas.

A complaint has also been filed with the commission by the Nichols Wire, Sheet & Hardware Co., Kansas City, Mo., against the Alabama Great Southern railroad. It is alleged that unjust and unreasonable rates are charged on shipments of steel articles from various points to Muskogee, Okla., and Tulsa, Okla.

Cold Finished Steel

Demand Continues Steady at Mill Asking Prices

COLD FINISHED PRICES, PAGE 529

Pittsburgh, Aug. 28.—Cold finished bar demand is unusually steady for this period of the year. The automotive and agricultural implement interests are supplying a large share of the demand, although most consuming lines are active in specifying. Sellers report no trouble in obtaining 2.20c, Pittsburgh, on new business. The price for fourth quarter contracts is expected to be announced early in September.

Strip

Advance of $2 Not Tested But Seems Likely to Hold—New Extras Named

AN ADVANCE of $2 per ton on cold-rolled strip is in effect but consumers are not buying freely and it is not tested. Indications are it will be established. A new set of extras has been announced, applying on less than 3 tons. Makers are operating at a high rate. Hot strip is less strong but is holding fairly well to current quotations.

STRIP PRICES, PAGE 530

Pittsburgh, Aug. 28.—Under the new set of extras generally adopted by cold rolled strip mills, the extra for 5999 to 2000 pounds of a size will be 0.25 cents; from 1999 to 1000 pounds, 0.65 cents; from 999 to 500 pounds, 1.25 cents; from 499 to 300 pounds, 2.25 cents; from 299 to 200 pounds, 3.25 cents; and from 199 to 100 pounds, 5.25 cents. The current base upon which these extras are predicated is 2.85c, which applies on three tons and over. Specifications for cold rolled strip continue exceptionally good for August, and many producers continue at practically record operations.

Hot rolled strip producers believe they discern a tendency for the market on less than 3-inch to approach 2.20c; on 3 to 6-inch, 2.00c; and on 6 to 12-inch, 1.90c. Specifications, especially from the automotive industry, continue heavy.

New York, Aug. 28.—A $2 advance on cold rolled strip steel has been named by some mills, making the price 2.85c, base, Pittsburgh, plus quantity differentials. So far there has been no real test of this advance, as most consumers are covered to the end of third quarter at old prices. A brisk demand continues to be enjoyed by cold strip makers, who generally are operating full.

Philadelphia, Aug. 28.—Strip steel demand continues good. Some large tonnages were placed in the past two weeks. On 6 to 12-inch hot rolled strip the minimum price was 1.80c, base, Pittsburgh, going up to 2.00c and 2.10c for the narrower widths. The usual price of cold rolled strip is 2.75c, base, Pittsburgh, plus quantity differentials, although some makers now quote 2.85c as minimum.

Chicago, Aug. 28.—Mills are operating at capacity, demand being distributed among practically all consuming industries. Specifications for material to be delivered during third quarter are heavy. While the new price, 2.85c for 3 tons and over, f.o.b. Cleveland or Pittsburgh, for fourth quarter and for spot business has not been out long enough to meet a test, indications point to ready acceptance by the trade.

To some degree hot rolled strips reflect the weakness which has prevailed in some eastern producing centers.

Nonferrous Metals

Strength Is Displayed as Some Prices Advance—Lead Goes Up 20 Points Accompanied by Largest Demand in Months

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin—New York Spot	Straits Tin—New York Futures	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
Aug. 22	14.75	14.87½	14.37½	48.00	46.50	6.20	6.02½	6.25	23.90	10.37½	35.00
Aug. 23	14.75	14.87½	14.37½	48.00	46.50	6.30	6.10	6.25	23.90	10.37½	35.00
Aug. 24	14.75	14.87½	14.37½	47.37½	46.00	6.30	6.12½	6.25	23.90	10.37½	35.00
Aug. 27	14.75	14.87½	14.37½	47.12½	45.75	6.40	6.22½	6.25	23.90	10.30	35.00
Aug. 28	14.75	14.87½	14.37½	47.50	46.12½	6.40	6.22½	6.25	23.90	10.00	35.00

NEW YORK, Aug. 28.—Prices of nonferrous metals during the past week were strong. Lead went up 20 points in two rises of ten points each, accompanied by the largest buying in months. The markets otherwise are closing the month quietly, with unusually large business done so far this year, and the outlook excellent for the balance of the year. The only exception to firmness is in tin, with a drop of more than one cent in a week, which brings futures down to the low price of the year.

Copper—Domestic buying has been extremely light during the past week, but expert business has continued moderately active. The little interest shown in domestic shipments was mostly for September delivery. That month's requirements now are nearly all covered, but a minimum amount of business has been done in October shipment metal. It is thought that buying for October may become active soon after Labor day. Shipments of copper continue at a high rate. Export buying lately has been for September and October shipments. Prices remain firm at 14.75c, Connecticut, 14.87½c, Middle West, and 15.00c, c.i.f., European ports.

Zinc—Buying of prime western zinc has continued extremely light. Producers, however, are showing unusual firmness in the face of this situation. Sales made lately have been mostly for September, but some prompt and November business also has been November business also has been placed. Producers generally are willing to sell for the balance of the year at 6.25c, East St. Louis. The ore market continues unchanged at $40 a ton. Surplus stocks are accumulating at Joplin as output each week runs a little larger than sales.

Tin—Buying of tin by domestic consumers for autumn delivery was large about a week ago, but this business made little impression on prices and as soon as the market became quiet prices went down again. Monday morning futures duplicated the low point of the year, and a little metal may have been sold even lower than in the latter part of June. Users bought actively on Monday for the balance of the year and prices made some recovery, but remained below the levels of a week ago. Shipments from the Straits this month will be unusually large, and the world visible supply is expected to increase sharply despite large deliveries in this country.

Lead—After remaining unchanged since the early part of July, the market has been unusually strong this week with a rise to 6.30c, New York, on Thursday and to 6.40c on Monday. The St. Louis market showed a little strength prior to the rise by the American Smelting & Refining Co. on New York basis. The open market on New York basis has kept step with the Smelting company. Buying has been unusually large, but very little of it for metal to be delivered beyond September.

Aluminum—Prices are steady and firm except for a little easiness in remelted metal. Business is of fair size for this season.—*Daily Metal Trade.*

Mill Products

Base prices cents per pound f.o.b. mill

SHEETS	
Yellow brass (high)	19.25
Copper, hot rolled	23.50
Lead, full sheets (cut ¼c more)	10.00
Zinc sheet (100-pound base)	9.75
Zinc strip (100 pound base)	9.00
Aluminum, flat sheets, up to 10 gage, 3" to 72" wide	31.30
SEAMLESS TUBES	
Yellow brass (high)	24.12½
Copper	25.00
RODS	
Yellow brass (high, full turning)	17.00
Naval brass	19.75
WIRE	
Copper, car lots	16.37½
Yellow brass (high)	19.75

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	9.50 to 9.75
Chicago	9.25 to 9.50
Cleveland	9.50 to 10.25
HEAVY YELLOW BRASS	
Chicago	7.00 to 7.25
Cleveland	7.00 to 7.50
ZINC	
New York	3.50
Cleveland	2.75 to 3.25
HEAVY COPPER AND WIRE	
New York	12.25
Boston	11.50 to 12.00
Chicago	11.50 to 12.00
Cleveland	11.25 to 12.00
RED BRASS BORINGS	
New York	8.50 to 9.00
YELLOW BRASS TUBING	
Cleveland	7.00 to 7.50
LIGHT COPPER	
New York	10.75
Chicago	10.50 to 10.75
Cleveland	9.50 to 10.50
LIGHT BRASS	
Boston	5.75 to 6.00
Chicago	6.75 to 7.00
Cleveland	5.00 to 5.50
ALUMINUM	
Clippings, Cleveland	16.00 to 17.00
Borings, Cleveland	7.50 to 8.00
Cast, Cleveland	11.50 to 12.00
Cast, Boston	10.50 to 11.00

Secondary Metals

Remelt Aluminum No. 12	15.00 to 15.50
Brass ingot, 85-5-5	12.50 to 13.00

Coke By-Products

Toluol and Benzol in Brisk Demand —Prices Strong

New York, Aug. 28.—Toluol demand continues strong, with unusual activity in the automotive industry for this time of the year contributing heavily. Prices on leading distillates are unchanged.

Benzols are moving briskly, with solvent naphtha and commercial xylol moving only fair. Trading in sulphate of ammonia for domestic account is quiet, although a heavy volume of material is moving against seasonal contracts. Export inquiry for this material is light, with prices holding at nominally $2.35, port, for sulphate in double bags. The domestic market is $2.20, delivered. Naphthalene is undergoing seasonal dullness, with prices weak, although unchanged.

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot	Contracts
Pure benzol	$0.22	.....
90 per cent benzol	0.22	.....
Toluol	0.35	.....
Solvent naphtha	0.30	.....
Commercial xylol	0.30	.....
Per Pound at Producer's Plants in 250-Pound Drums		
Phenol	0.17	.....
Per Pound at Producers' Plants		
Naphthalene flakes	0.06 to 0.07	
Naphthalene balls	0.06 to 0.07	
Per 100 Pounds Delivered		
Sulphate of ammonia	$2.20	

Quicksilver Is Strong

New York, Aug. 28.—Quicksilver continues strong at $127 to $130, and the lower prices in the range are likely to be eliminated on account of higher prices abroad.

Henry C. Sorby first applied the microscope to the study of metals in 1863, having been with meteoric iron.

Warehouse

Sales Continue Seasonally High for Late August and Maintain Fast Pace of July—Galvanized Lower in New York

IRON and steel warehouses in most important centers continue to do a volume of business that is seasonally high. In large measure their sales are in step with the demand for mill material. As yet the warehouses have received no appreciable help from the fact mill deliveries are slowing up. Warehouse prices generally are unchanged.

Warehouse demand in New York metropolitan district continues good for the season, with lower quotations on galvanized sheets, on which shading is more pronounced. The market may now be quoted at 4.25c to 4.50c in Manhattan and Brooklyn, compared with 4.50c recently. On the other hand, prices on plain material from abroad are tending upward and while this is bearing primarily on the domestic mill situation, it is having a stimulating effect on the warehouse market at New York.

Warehouses have had good business in the Buffalo district in July and August. The two months will establish the best sales volume of any like period this year if demand holds this week at present levels. Prices are sound with the exception of some offerings of reinforcing bars at low figures.

Sales at Cleveland out of stock are holding at about the July rate but surpassing last August by a good margin in most cases. Prices are unchanged.

Cincinnati warehouses are now quoting hoops at 4.25c instead of 4.40c. Warehouse demand at Cincinnati the past week has been comparatively light. It is believed that once the Labor day holiday is past jobbers, will experience heavier requirements, especially from the hardware trade.

Warehousemen at St. Louis find continuance of steady improvement which started early this month. New orders, while mainly small, are steady, and specifications generally are expanding. General manufacturing trade is taking heavier tonnages than heretaking heavier tonnages than heretofore, and of a wider variety of materials. There is a brisk demand from southern cotton sections, and lumber mills in that section are purchasing in larger volume.

Class I railroads Aug. 1 had 151,867 freight cars in need of repair or 6.7 per cent of the number on line, according to reports just filed by the carriers with the car service division of the American Railway association. This was a decrease of 19 under the number reported July 15.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	3.10c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.75c
Houston	3.00c
Los Angeles	3.30c
New York†††‡	3.25c
Philadelphia*	2.70c
Pittsburgh	2.90c
Portland	2.50c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.04c

IRON BARS

Baltimore	3.10c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.75c
New York†‡	2.80c to 3.24c
Philadelphia*	2.70c
St. Louis	3.15c
Tulsa	3.75c to 4.04c

REINFORCING BARS

Baltimore	3.31c
Boston	3.265c to 3.50c
Buffalo	2.75c
Cincinnati	3.15c
Cleveland	2.25c to 3.00c
Detroit	3.00c
Ft. Worth	3.50c
Houston	3.00c
Los Angeles cl.	2.65c
Los Angeles lcl.	3.00c
New York	2.95c to 3.10c
Philadelphia	2.30c to 2.80c
Pittsburgh	2.75c to 3.175c
San Francisco cl.	2.00c
San Francisco lcl.	2.25c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c to 2.60c

STRUCTURAL SHAPES

Baltimore	3.10c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.25c
Houston	3.25c
Los Angeles	3.30c
New York††‡‡	3.25c to 3.30c
Philadelphia	2.40c to 3.00c
Pittsburgh	3.00c
Portland	2.90c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

PLATES

Baltimore	3.10c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.30c
Ft. Worth	4.00c
Houston	3.00c
Los Angeles	3.30c
New York†‡	3.30c
New York‡‡ (floor)	5.05c to 5.10c
Philadelphia	2.40c to 3.00c
Phila., 3/16-in.	2.60c to 3.20c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

No. 10 BLUE ANNEALED

Baltimore	3.45c
Boston, 3/16-in.	3.915c
Buffalo	3.70c
Chicago	3.35c
Cincinnati	3.45c
Cleveland	3.25c
Detroit	3.35c
Ft. Worth	4.70c
Houston	3.90c
Los Angeles	4.00c
New York†‡	3.90c
Portland	3.75c
Philadelphia*†	3.15c
Pittsburgh**	3.00c to 3.10c
San Francisco	3.90c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.75c
Tulsa	4.20c to 4.54c

No. 24 BLACK SHEETS

Baltimore	3.10c to 4.00c
Boston	5.00c
Buffalo	4.20c
Chicago	3.80c
Cincinnati	3.90c
Cleveland	3.40c
Detroit	3.95c
Ft. Worth	4.70c
Los Angeles	4.90c
New York†††	3.70c to 3.80c
Philadelphia*†	3.85c
Pittsburgh‡	3.50c to 3.55c
Portland	4.90c
San Francisco	4.95c
Seattle	5.00c
St. Louis	4.10c
St. Paul	3.95c
Tulsa	4.34c

No. 24 GALVANIZED SHEETS

Baltimore	4.10c to 4.75c
Boston	5.85c
Buffalo	4.70c to 5.05c
Chicago	4.65c
Cincinnati	4.75c
Cleveland	4.25c
Detroit	4.75c
Ft. Worth	5.50c
Houston	5.30c
Los Angeles	5.30c
New York†††	4.25c to 4.50c
Philadelphia*†	4.60c
Pittsburgh‡	4.40c
Portland	5.50c
San Francisco	5.40c
Seattle	5.50c
St. Louis	4.95c
St. Paul	4.90c
Tulsa	6.50c

BANDS

Baltimore	3.85c
Boston	4.015c to 5.00c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.65c
Detroit	3.65c
Ft. Worth	4.40c
Houston	3.65c
Los Angeles	4.15c
New York†‡	4.00c
Philadelphia*	3.25c
Pittsburgh	3.60c
Portland	3.75c
San Francisco	4.10c
Seattle	4.00c
St. Paul	3.90c
Tulsa	4.66c

HOOPS

Baltimore	4.00c
Boston	5.50c to 6.00c
Buffalo	4.05c
Chicago	4.15c
Cincinnati	4.25c
Cleveland	3.65c
Detroit	4.15c
New York†‡	4.50c
Philadelphia*	3.50c
Pittsburgh	4.50c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds, hexagons,	Flats, squares
Baltimore	3.35c	3.85c
Boston	3.45c	3.95c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles (a)	4.50c	
New York	3.40c	3.90c
Philadelphia*	3.35c	3.85c
Pittsburgh	3.60c	4.10c
Portland (a)	4.75c	
San Fran. (a)	4.25c	
Seattle (a)	5.00c	
St. Paul (a))	3.85c	
Tulsa	4.76c	5.26c

(a) Rounds only.

COLD ROLLED STRIP

Boston, 0.100-inch, 500 pound lots	5.30c
Buffalo	5.85c
Chicago (b)	6.10c
Cincinnati	7.15c
Cleveland (b)	5.95c
Detroit	5.80c
New York	5.15c
Philadelphia (c)	5.00c

(b) Net base, straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid	
Hollow drill steel	14.00c
Iron bars, rounds	6.25c
Flats and Squares	
Baltimore, New York, Phila.	6.60c

*Plus quantity differentials. ‡‡Minus quantity differentials. ††Domestic bars. ‡10 to 24 bundles. **25 or more sheets. *†50 or more bundles. †††Newark-Jersey City 4.00c on black and 4.70c on galvanized the more prevalent figures.

Pacific Coast

Quiet Summer Market Gives Good Volume of Buying—Prices Hold Firm Level

IRON and steel markets on the Pacific coast offer no special features and are of the usual summer variety. Sufficient building and other allied projects continue to come up and be closed to give a steady flow of material. Highway construction calls for considerable bridge steel. Pipe requirements are excellent. Prices are steady.

San Francisco, Aug. 25.—(By Air Mail)—Trading in iron and steel products continues well sustained with structural shapes and cast iron pipe most in demand. Interest continues to be centered in the distributing system for the East Bay municipal utility district at Oakland which calls for 7200 tons of plates or 22,000 tons of cast iron pipe. Pipe mill men are watching with keen interest the developments on a $20,000,000 proposed gas main line from Ventura to San Francisco, involving at least 50,000 tons of pipe.

Imports of iron and steel products on the Pacific Coast during May were as follows:

	May, 1928 Tons	May, 1927 Tons
Pig iron	2,083	3,261
Coke	7,982	10,765
Bars	6,694	5,005
Structural shapes	5,184	2,302
Cast iron pipe	2,012	2,328
Tubular products	3,600	9,872

Pig Iron and Coke

Approximately 800 tons of Indian pig iron has arrived in San Francisco this week, about half of which will go to a Los Angeles interest later. Another shipment of the same material is scheduled to arrive next week and about 300 tons each will be unloaded at Los Angeles and San Francisco. Prices on Indian iron has weakened slightly and $24 to $25 a ton now represents the range. Little or no improvement is noted in operations among jobbing foundries here, but increased activity is noted in the Los Angeles district. Demand for coke is spotty, as most users have fair supplies in foundry yards.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	24.00 to 25.00

*C.i.f. duty paid.

Bars, Plates and Shapes

Out-of-stock prices in the San Francisco district on concrete bars remain weak and 1.85c is general, with some business going as high as 2.00c. Awards this week totaled less than 500 tons, bringing the aggregate for the year to 49,176 tons, compared with 26,058 tons for the corresponding period last year. Included among the larger lots were 145 tons for a hospital at Eldridge, Calif., 153 tons for pier No. 45, San Francisco, and 100 tons for a factory in Seattle, booked by the Pacific Coast Steel Co. Kuckenberg & Wittman were low on 160 tons for a bridge over the Deschutes river at Maupin, Oreg. Bids will be opened Sept. 17 for 525 tons for Bernal Cut. San Francisco. Awards so far this year total 19,406 tons, compared with 50,019 tons for the same period in 1927. Prices have weakened and 2.20c to 2.25c c.i.f. is general, with some small lots bringing 2.30c.

Structural steel shape awards aggregated 2965 tons and brought the total for the year to 93,749 tons, compared with 104,016 tons for the corresponding period last year. Among the larger lots were 1400 tons for pier No. 45, San Francisco, booked by the Pacific Coast Steel Co., 1160 tons for an office building in Oakland, taken by the Judson-Pacific Co. and 250 tons for a hangar for the Oakland port commission, placed with Moore Drydock Co. Pending business involves over 15,000 tons, new inquiries including 700 tons for a factory addition in Tacoma and 859 tons for two bridges in Washington. Plain material continues firm to 2.35c c.i.f., the level in effect for some months.

Other Finished Material

An increase in demand for cast iron pipe is reported and awards this week aggregated 2727 tons, bringing the total for the year to 53,224 tons, compared with 57,625 tons for the same period in 1927. The American Cast Iron Pipe Co. took 1508 tons of pipe for the Weyerhaeuser Timber Co., Longview, Wash., and the Pacific States Cast Iron Pipe Co. secured 318 tons for Los Angeles. The Spring Valley Water Co., San Francisco, has taken bids on 1062 tons of centrifugal pipe. Movement of standard pipe and oil country goods is increasing, especially oil well casing. Increase in demand for oil country goods is due primarily to the reopening of drilling operations in the Santa Fe Hills district out of Los Angeles. Several large gas companies, the Southern California Edison Co., the Pacific Gas & Electric Co. and the Pacific Lighting Co., are considering installation of a gas main line from the southern part of the state to the bay region, which will require 50,000 tons or more of 12 to 20-inch pipe.

Seattle Market Quiet

Seattle, Aug. 22.—While the steel market is quiet in the Pacific Northwest, the volume of business is fair and several large projects are in sight. Prices are holding steady. Less steel is being received from foreign sources but competition of imported materials in stock is being felt in some quarters.

Bars, Plates and Shapes

Prices are holding firm, bars and shapes at 2.35c and plates at 2.25c. Reinforcing materials are 2.20c.

While local mills report unchanged operations, inquiry for reinforcing materials is less active. Orders are mostly car lots and not many awards of 100 tons or more have been placed. Few building operations requiring heavy tonnages of bars are out.

The Frederick & Nelson concrete warehouse is to be six stories instead of three, increasing the original award for 400 tons of reinforcing to about 650 tons, which has been split between the two local steel mills. Peck & Hills warehouse, now under construction, is to have an addition, 60 x 100 feet, four stories, adding about 250 tons to the original award of 1000 tons, all to be furnished by the Northwest Steel Rolling Mills. This mill also has the contract for furnishing 155 tons for the substructure for the Spokane street bridge at Seattle and about 50 tons for a bridge at Kellogg, Idaho.

No pending projects call for more than 100 tons of plates. Jobbing houses report a good volume in light gages for tank and boiler work. Tacoma will open bids Aug. 29 for furnishing 980 feet of 48-inch smooth bore or 51-inch riveted, and 690 feet of 51-inch smooth bore or 54-inch riveted steel pipe.

Gets Shapes for Bridge

Pacific Car & Foundry Co., Seattle, booked 900 tons of shapes involved about equally in the Marblemount and Nugents state highway bridges, general contracts for which were announced last week. The same plant also has the contract for 70 tons for the Lawton way bridge, Seattle. Hofius Steel & Equipment Co. was awarded 200 tons for the Second avenue South viaduct, Seattle. Kuckenburg & Wittman, at $94,860, were low bidders for the state highway bridge over the Deschutes river, near Maupin, Oreg. This job will require 170 tons of structurals and 160 tons of reinforcing. Structural projects pending here include 210 tons for an addition to the Boeing airplane plant, general contract to the Austin Company; 130 tons for the Pacific Coast Cement plant and 50 tons for the Sand Point hangar. Bids will be opened by the state Sept. 4 for Kalama river bridge, 230 tons, and Coweeman river bridge, 120 tons, both projects in Cowlitz county. Minister of public works, Victoria, B. C., will receive bids Sept. 4 for the superstructure of the Fraser river bridge at Kuesnel, tonnage unstated.

Will Present Papers at Safety Congress

The seventeenth annual safety congress, sponsored by the National Safety Council, will be convened in New York, Oct. 1 and will continue through Oct. 5. Meetings of the various sections of the congress will be held in the Pennsylvania, Waldorf-Astoria, McAlpin, Martinique and Commodore hotels. The metals section will assemble in the Waldorf-Astoria hotel Monday afternoon and Tuesday, Wednesday and Thursday mornings, Oct. 1, 2, 3 and 4 and the power press section in the Pennsylvania hotel on the same period. A few of the papers scheduled to be read at meetings of these sections are as follows:

Metals Section

"Safety from the Viewpoint of Management," by R. M. Roosevelt, vice president, Eagle Picher Lead Co., New York.

"Safety from the Viewpoint of Supervision," by Dominic Samuels, foreman, Youngstown Sheet & Tube Co., Youngstown, O.

"Correction of Unsafe Practices in Foundries," by Nelson H. Kyser, safety engineer, Studebaker Corp. of America, South Bend, Ind.

"Developing a Safe Human Factor in Our Industries," by L. A. Hartley, director educational department, National Founders' association, Chicago.

"The Placement of Men, or What the Surgeon Can Do," by A. W. Colcord, M. D., plant surgeon, Clairton works, Carnegie Steel Co., Clairton, Pa.

"Review of Accidents and Progress in the Steel Industry," by Dr. L. W. Chaney, bureau of labor statistics, department of labor, Washington.

Debate: "That the Foreman Is Responsible for Accidents that Occur in His Department," by J. A. Voss, director of safety and compensation, Central Alloy Steel Corp., Massillon, O., and Mike Grady, president, Stark County Foreman's Club, Canton, O.

Power Press Section

"The Woman Operator in the Punch Press Department," by Ruth I. Stone, chief of women's personnel department, operating branch, Hawthorne works, Western Electric Co., Chicago.

"Training the Foreman to Be a Teacher," by M. J. Kane, engineer in charge of training, plant department, American Telephone & Telegraph Co., New York.

Starts Erection of All-Welded Building

Work recently was started on the first unit of a group of commercial buildings in Cleveland which includes a 20-story tower structure. The building now under construction is being fabricated by arc-welding and is a 4-story structure which will house retail stores on the ground floor and offices on the remaining three floors. Provisions have been made in the design of the building so that every alternate column in the front of the store rooms can be removed, thus making available at any time either 17 or 34-foot wide store fronts.

The building is said to be the first all-welded steel structure to be erected in Cleveland and the first commercial building so constructed in the country. It probably is the first structure whose owners have no connection with manufacturers of welding equipment. The building was designed and is being erected by the Austin Co., Cleveland. The structural steel was fabricated in the company's shops, the arc welding being done at the mill and in the field by the Lincoln Electric Co., Cleveland.

Valley Operations Above 80 Per Cent

Youngstown, O., Aug. 28.—Conservative expansion in the rates of steel works operations in this district appears to be the rule, the average rate for the industry here being well above 80 per cent this week. One additional independent open hearth went on Monday, making 44 independent units active out of 53. Bessemer activity also has gained. Activity with Steel Corporation subsidiaries is between 75 and 78 per cent. Out of a total of 127 independent sheet mill units, 105 are running this week, against 110 last week, due to two plants being idle temporarily at Niles. Independents have put up their bar mill activity to 75 per cent, while the Carnegie mills continue at that rate as in past weeks. Tin mill production is at capacity with the independent here and at 85 per cent for Steel Corporation mills. Strip production is at capacity, and pipe mills have 14 units going out of 20, including the two seamless mills.

Pig Iron Prices Advanced

(*Concluded from Page* 531)

for outside delivery is likely to be advanced another 50 cents.

Philadelphia, Aug. 28.—The past week was one of the most active of the year in the pig iron market here. Several eastern steelmakers bought a total of 30,000 to 35,000 tons of basic, while sales of low phosphorus iron by eastern furnaces amounted to fully 15,000 tons. Basic continues $18.75 to $19.25, delivered, this territory, while on several low phosphorus sales higher prices were done than those previously prevailing. An inquiry for 6000 tons of basic now is pending, while another basic inquiry is tentatively before the trade. Foundry iron sales in the week aggregated around 10,000 tons for this district, but most forward requirements remain to be bought. There are indications of a heavy buying movement of foundry iron in this territory in a few weeks as melters are impressed with price advances in other districts. Foundry iron is unchanged at $19.50, base, eastern Pennsylvania furnace, but this price is firm and subject to freight equalization. Word has been received that about 10,000 tons of Virginia pipe iron has been sold in that state.

Chicago, Aug. 28.—Chicago furnaces have advanced pig iron prices 50 cents, No. 2 foundry and malleable now being held at $18, and full silicon differentials being charged for other grades of foundry iron. Some buying is noted at the new prices. Furnace stocks are extremely low in some instances. The leading independent interest contemplates lighting more stacks. It is reported on good authority the Ford Motor Co. is returning to the use of malleable iron for some parts. A Buffalo furnace interest is understood to have sold 4000 tons of silveries for delivery in Michigan. Jackson county stacks are going out this fall, according to report here.

Cincinnati, Aug. 28.—Alabama furnaces advanced their prices of pig iron after lake furnaces went up 50 cents a week ago. The southern furnaces have added 75 cents to their price, quoting $16.25, base, Birmingham, equivalent to $19.94, delivered, Cincinnati. This is competitive with northern iron, which can be delivered here at $19.90 under the new schedule of prices. A fair volume of small sales and inquiries is noted.

St. Louis, Aug. 28.—Purchasing of pig iron is in larger volume and more diversified than in a number of weeks. Strengthening of prices and diminishing blast furnace stacks in the East and South have brought in numerous buyers. Trading, however, is mainly for present quarter delivery. A fair volume of inquiry has appeared, and the undertone of the market is strong. Another encouraging factor has been the continued heavy shipments and specifications on tonnage under contract. There is every indication the August movement will exceed that of July, also the August, 1927, total. Sales booked during the week totaled more than 12,500 tons, the bulk of which was placed with the St. Louis Gas & Coke Co. Southern furnaces booked about 2200 tons. The largest single order was for 2300 tons from a radiator interest for its Missouri and Illinois plants. St. Louis stove foundries purchased 950 tons; Illinois specialty and implement makers 1900 tons; an Iowa implement maker 750 tons; Quincy equipment and engine builders 1100 tons. This interest has advanced its $18.50 to $19 f.o.b. Granite City price, to $19 to $19.50 and there are intimations that further upward revision in the near future is likely.

Birmingham, Ala., Aug. 28.—An advance of 75 cents a ton on pig iron, now selling at $16.25, base, Birmingham, did not come unexpectedly. While small lot buying has been under way for some time, the aggregate business booked for third quarter is more than the probable make.

Toronto, Ont., Aug. 28.—More active buying featured business in the Canadian pig iron markets during the week. With foundries operating from 70 to 100 per cent, raw material requirements are at a high level. Sales for the week mark a new high for the summer level. Prices are firm.

The first mill constructed on the continuous rolling principle for rolling iron or steel was patented in 1861 by Charles While of Pontypridd, Wales.

Chemical Specification Extras on Bar Card Are Being Revised

CLEVELAND, Aug. 28.—New list of extras for chemical specifications on structural shapes, plates, bars, small shapes, hoops and bands when rolled from either bessemer or open hearth steels has been issued by a number of important makers. The new list is designed to replace the former rather indefinite list, which with some makers ranged from 5 to 10 cents, and with others up to 15 cents. The new arrangement would put all subscribing steelmakers upon the same basis for chemical specifications.

Formerly, one important bar, plate and shapemaker charged 10 cents extra for an increase of carbon content from 0.50 to 0.60, while others charged only 5 cents. Now it is proposed that all subscribe to the 5-cent limit in the 0.50-0.60 carbon range. Above 0.60 and up to 1.25 carbon, the 15-cent extra is retained.

The new steel bar card dated Aug. 1, 1928, just issued by the Republic Iron & Steel Co., Youngstown, O., which is characteristic of the proposed new chemical specifications that have been adopted by various independents and appear likely to be accepted and promulgated by all steelmakers, reads as follows:

The mean of the range agreed upon between the purchaser and manufacturer shall determine the extra.

CARBON

Open hearth .10 to .25 } Bessemer .08 to .25 }	Base
.26 to .60	$ .05
.61 to 1.25	.15
When maximum specified is:	
Open hearth .09 } Bessemer .07 }	.05

MANGANESE

.30 to .90	Base
.91 to 1.15	$ .10
1.16 to 1.35	.20
1.36 to 1.50	.25

NOTE: For manganese content above a mean of 1.15 the above extras apply only to steel maximum carbon specified .20 or higher.

PHOSPHORUS

When minimum not specified	Base
When minimum specified between .040 and .080	$ .05

NOTE: Phosphorus extra applies to OPEN HEARTH STEEL only.

SULPHUR

When minimum not specified	Base
When minimum specified between .070 and .100	$ .10

SILICON

When minimum not specified	Base
.10 to .25	$ .10
.26 to .50	.20

NOTE: Silicon extras do not apply to Structural Shapes and Plates.

COPPER

When minimum not specified	Base
When specified: Minimum up to .20	$ .10

NOTES

All extras are given in cents per 100 pounds.

Extras are applicable only to acceptable sizes in the chemical limits specified.

EXTRAS FOR PHYSICAL SPECIFICATIONS

When material ordered to physical specifications the extras for the required chemical contents shall apply.

STANDARD RANGES

The following ranges of elements are standard; the maximum of ranges specified to govern:

CARBON

Up to .25 inclusive	5 points
.26 to .65 inclusive	10 points
.66 to 1.05 inclusive	15 points
1.06 and over	20 points

MANGANESE

Up to .75 inclusive	20 points
.71 to 1.50 inclusive	30 points

SILICON

Up to .20 inclusive	10 points
.21 to .30 inclusive	15 points
.31 to .50 inclusive	20 points

NOTE: Specifications calling for closer ranges than indicated above can only be adhered to at an extra cost unless a combination of orders is so arranged that all steel coming within the standard ranges can be applied.

Extras for analysis or close ranges not covered by this card, furnished upon application.

Roads Oppose Rail Outlet for Youngstown

Washington, Aug. 28.—Exceptions have been filed with the interstate commerce commission to the report of C. V. Burnside, assistant director, bureau of finance, favoring the application of the Pittsburgh, Lisbon & Western railroad to construct branch line extensions and the application of the Montour Railroad Co. to acquire control of the Pittsburgh, Lisbon & Western by the purchase of capital stock. The exceptions were filed by the Pittsburgh & Lake Erie, Baltimore & Ohio and Pennsylvania railroad.

After taking exception to the granting of both the extension of the road and the purchase of control by the Montour railroad, the intervenors "except to the failure of the assistant director to find that the proposed construction and operation by the Pittsburgh, Lisbon & Western Railroad Co., under control of the Pittsburgh Coal Co., would enable the latter company to enjoy a monopoly in the marketing of coal in the Youngstown district, and therefore would not be in the public interest."

The intervenors also except "to the failure of the assistant director to find that the proposed construction and operation by the Pittsburgh, Lisbon & Western Railroad Co., under control of the Pittsburgh Coal Co., would enable the latter company to suppress competition between shippers of commercial coal from the Pittsburgh and Connellsville districts to the Youngstown district, and therefore would not be in the public interest."

It is contended also that "control of the terminal facilities at Smith's Ferry," by the Pittsburgh Coal Co., "would, in effect, limit the operation of the Pittsburgh, Lisbon & Western to the private purposes of the coal company, and therefore would not be in the public interest."

The brief sets forth too, that, "it is not in the public interest to authorize the construction and operation of new lines of railroad when adequate transportation facilities are now in existence." Further, "if, in the public interest, a water and rail method of transportation is desirable, the service should be by common carriers, and the existing rail lines should be utilized."

Stoker Sales Increase

Washington, Aug. 28.—Sales of mechanical stokers in July continued the increase that started in May. The July total was 193, compared with 166 in June, according to the department of commerce. Following are monthly comparisons:

	Stokers sold	Fire tube boilers	Water tube boilers
1926 total	1,361	289	1,072
1927			
July	136	42	94
Total (7 mos.)	865	279	586
August	160	60	100
September	104	48	56
October	95	37	58
November	67	26	41
December	83	29	54
Total (year)	1,374	479	895
1928			
January	75	20	55
February	85	26	59
March	123	31	92
April	88	21	67
May	130	43	87
June	166	82	84
July	193	73	120
Total (7 mos.)	860	296	564

Car Movement a Record

Average daily movement per freight car for the first six months of 1928 was the highest for any corresponding period on record, amounting to 30 miles per day, states the bureau of railway economies. This was an increase of one-tenth of a mile over the corresponding period last year and an increase of one mile over the same period in 1928.

Daily average movement for June was 30.4 miles, which also established a new high mark for any corresponding month on record. This exceeded by four-tenths of a mile the average for the same month last year and was also an increase of three-tenths of a mile over June 1926.

In 1862 acetylene first was prepared from calcium carbide and water by Friedrich Wohler, the German chemist.

Industrial Men in the Day's News

John H. Watson Jr., President of Corrigan, McKinney Steel Co.

GOING from the law profession to the steel industry, he has followed the path of a number of other prominent industrialists.

A NATIVE of New England, he went to the Middle West to establish himself and begin the career which placed him in his present responsible position.

HE PROFESSES no hobbies and is satisfied to devote the greater part of his time to his executive duties.

WHEN John H. Watson Jr. began preparation for his legal career it is barely possibly that he expected it to lead him into the steel industry. Quite likely, farthest from his mind was holding the responsible executive position of president of a prominent steelworks. Yet Mr. Watson, lawyer associated with M. B. and H. H. Johnson, Cleveland, is also president of the Corrigan, McKinney Steel Co., Cleveland.

Mr. Watson is a native of Vermont and attended St. Johnsbury academy, St. Johnsbury, Vt. His college studies were taken up at Dartmouth college, Hanover, N. H. from which he was graduated in 1904. He pursued his law courses at Harvard law college, Cambridge, Mass., finishing in 1907. In that same year he became associated with the Johnson law firm Cleveland.

The first contact Mr. Watson made with the steel manufacturer with whom he was to be associated was in 1918, when he became personal counsel for the late James W. Corrigan. It was in this year that the Corrigan, McKinney company became known as the McKinney Steel Co., when Mr. Corrigan discontinued his active participation in its affairs. Not until 1925 did Mr. Corrigan return to the company, and this time it was to become its president. At this time Mr. Watson assumed his first executive position with the organization, that of secretary and general counsel.

In the intervening years he had made a connection with the Aluminum Manufacturers Inc., Cleveland, and for a while was secretary of the group.

Mr. Watson's ascent in steel is similar to that of the late Judge E. H. Gary, as chairman of the United States Steel Corp.; Gordon Fisher, president of Spang, Chalfant & Co.; John T. Harrington former president of the Trumbull Steel Co., and others who came into the industry through the legal profession.

Mr. Watson was named in Mr. Corrigan's will as a trustee of the Corrigan estate with wide authority in the administration of money and properties, which included a major interest in the steel company. The confidence reposed in him by the late Mr. Corrigan is reflected in a provision of the will directing that no bond be required of Mr. Watson in the administration of the estate.

Mr. Watson is 44 years old and is unmarried. One of his claims to distinction is the fact that he does not play golf, nor does he profess any other hobbies. His work has absorbed the greatest part of his time and interest.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

W. A. MAXWELL JR. has been elected vice president of the Colorado Fuel & Iron Co., Denver, and as vice president and production manager will have charge of all manufacturing, mining and related activities of the company. Mr. Maxwell also was elected vice president of the subsidiary companies, the Rocky Mountain Coal & Iron Co., Colorado Supply Co. and the Colorado Realty Holding Co. Mr. Maxwell was associated at one time with the Inland Steel Co. as general superintendent of the Inland Harbor, Ind., works, and left that place to become production manager of the Colorado company. Prior to his connection with the Inland company, he had been assistant general superintendent of the Midvale Steel & Ordnance Co., Johnstown, Pa. Mr. Maxwell was in the engineering college at Pennsylvania State college, State College, Pa.

* * *

Arthur L. Tushbant, for the past 12 years associated with steel producers and users, has become associated with the Great Lakes Chemical Works, Detroit, as director of sales.

* * *

W. Frank Roberts, for ten years general manager of the Sparrows Point, Md., plant of the Bethlehem Steel Corp., has resigned. Stewart J. Cort has been appointed to succeed Mr. Roberts.

* * *

Paul E. Lattner, sales manager for the Wallace Bridge & Structural Steel Co., Seattle, has resigned. Mr. Lattner formerly represented the Minneapolis Steel & Machinery Co. in the Seattle territory.

* * *

William Kahl has been named superintendent of the rolling department of the Carnegie Steel Co., succeeding the late David W. Christie. T. J. Alter has been named assistant to Mr. Kahl.

* * *

William J. Teemer, for the past 18 years with the National Tube Co., has resigned to become associated with the Delaware Seamless Tube Co., Auburn, Pa., subsidiary of the Allegheny, Steel Co., as manager of sales.

* * *

Edward A. Brennan, recently appointed secretary of the National Metal exchange, New York, formerly was connected with various mining subsidiaries of the United States Steel Corp., and later was with the Emergency Fleet corporation.

* * *

Herbert J. Watt has been appointed manager of railroad sales for Jones & Laughlin Steel Corp., Pittsburgh.

* * *

E. C. Bain, research metallurgist with Union Carbide & Carbon Research Laboratories, Long Island City, N. Y., has resigned to go into the newly established research laboratories of the United States Steel Corp., New York.

* * *

Dan Lewis has been appointed Pittsburgh district manager for the Hubbard Steel Foundry Co., East Chicago, Ind., with offices in the Oliver building, Pittsburgh. He succeeds Bert A. Mick, recently resigned. Mr. Lewis formerly was sales manager and later general superintendent of the Pittsburgh Rolls Corp.

* * *

George W. Burrell, formerly vice president of Wellman-Seaver-Morgan Co., Cleveland, and who retired two years ago, has been elected president and general manager, succeeding John H. Bode, who has resigned. Mr. Burrell entered the employ of the Wellman company in 1898 as a draftsman, advancing steadily through various important positions to that of vice president and general manager. Last December Mr. Burrell was elected vice president of the Fulton Foundry & Machine Co., Cleveland. Mr. Bode had been with the Wellman company about two years.

Independent Steel Merger Again Rumored

Youngstown, O., Aug. 28.—Republic Iron & Steel Co.'s recent acquisition of Steel & Tubes Inc., enabling it to utilize the latter's patented electric process in the manufacture of large-size seamless pipe, has prompted another crop of merger rumors.

By some it is believed that Republic will become the nucleus of a large independent steel combination in the Middle West. This role undoubtedly would have been played by the Youngstown Sheet & Tube Co. had its proposed merger with Inland Steel Co., of Chicago, eventuated.

Interests of which Cyrus S. Eaton, of Cleveland, is the spokesman are identified with Republic, Inland and the Central Alloy Steel Corp., Massillon, O. Eventually it is believed that Youngstown will be included in such a grouping of Middle Western independents. This four-company combination would rival the Bethlehem Steel Co., now the largest independent.

The fact that 1928 is proving a good tonnage year for all companies concerned and will doubtless give stockholders a better net than last year may enable some present executives of these companies to step down with a more comfortable feeling.

When Republic has formally taken over Steel & Tubes it will be in position to make heavy pipe by the patented process which has made Steel & Tubes so important a factor in the lighter tubular lines. The revised Republic official lineup reveals considerable strengthening in the tubular end and presages Republic a more important factor in this field.

July Furniture Orders Continue Down

Washington, Aug. 28.—New orders for steel furniture in July continued the decline started last month, according to the department of commerce. Monthly comparisons follow:

	Business Group		Shelving	
	Orders received	Shipments	Orders received	Shipments
1926				
Total	31,393,171	31,429,140	7,340,351	7,837,017
1927				
July	2,091,804	2,040,209	534,592	564,744
Total, 7 mos.	18,273,501	18,435,993	4,405,566	4,341,054
Aug.	2,381,889	2,474,854	592,353	604,107
Sept.	2,367,857	2,218,602	607,905	531,154
Oct.	2,410,552	2,379,557	551,259	619,293
Nov.	2,476,230	2,856,181	574,763	590,764
Dec.	2,850,314	2,740,602	619,276	577,910
Total	30,760,343	31,105,789	7,351,122	7,264,282
1928				
Jan.	3,248,165	2,712,663	768,748	680,264
Feb.	3,295,861	2,908,527	741,310	681,999
March	3,283,329	3,169,351	841,098	831,607
April	2,915,344	3,065,637	740,658	716,104
May	*3,085,638	*3,213,291	732,921	*768,988
June	*2,764,085	*3,009,239	737,060	720,253
July	2,594,216	2,515,482	713,330	722,516
Total, 7 mos.	21,186,638	20,594,190	5,275,125	5,121,731

*Revised.

July Imports, Exports Down

Both Divisions of Foreign Trade Lose, with Former Dropping 27.3 Per Cent, and Latter Only 3.3 Per Cent—Scrap Shipments Lose 21,135 Tons, While Receipts Are Off 4027 Tons—Shapes Imported Total 11,192 Tons

THE start of the second half of 1928 was marked by declines in both exports and imports of iron and steel, with the drop being less for the former, according to statistics compiled by the iron and steel division of the department of commerce. Exports in July totaled 253,336 tons, compared with 262,052 tons in June, or a slackening off of 3.3 per cent. Imports, on the other hand, declined 27.3 per cent, from 65,819 tons in June to 47,830 tons in July. Exports in July, 1927, totaled 190,502 tons, with imports at 61,112 tons.

Cumulative exports for the first seven months in 1928 were appreciably higher than the corresponding period of 1928. In the former period exports were 1,612,078 tons, while the total for the latter was 1,323,959 tons. The import total, however, for the seven months of 1928, at 437,725 tons, was slightly lower than the 1927 figure—442,469 tons—although at the end of the first half of 1928 both exports and imports showed higher totals than the first half last year.

IMPORTS AND EXPORTS

Gross Tons

	—1928—		—1927—	
	Imports	Exports	Imports	Exports
Jan.	58,635	205,766	63,404	215,235
Feb.	47,628	185,915	49,451	166,128
March	74,128	221,935	61,872	171,094
April	71,579	215,184	60,374	192,339
May	72,106	267,890	79,814	202,708
June	65,819	262,052	69,017	184,364
July	47,830	253,336	61,112	190,502
Aug.	.....	.....	68,386	175,636
Sept.	.....	.....	58,464	166,352
Oct	.....	.....	52,503	170,255
Nov.	.....	.....	61,882	177,928
Dec.	.....	.....	64,188	168,428
Total	437,725	1,612,078	750,467	2,180,969

The 8716-ton drop in exports was helped along by a decline of 21,135 tons in scrap and a loss of 4847 tons in structural shapes. Ingot exports gained 10,822 tons, the most outstanding increase of the month. Other items increasing included galvanized sheets, which were 4821 tons higher than in July, and pig iron with a gain of 2924 tons.

The reduction in imports was reflected in fully two-thirds of the 27 classes of products into which this trade is divided. Especially large reductions in pig iron of 5744 tons, scrap, 4027 tons, and shapes, 3246 tons, were noted. There was but one increase worth noting, a 5206-ton gain in cast iron pipe. The cumulative total of imports was lowered due mainly to the losses in cast iron pipe, scrap, and hoops and bands.

As usual, Canada proved to be the principal market for exports, taking approximately the same tonnage as in June. Japanese receipts totaled 28,093 tons, the bulk of which was black steel sheets scrap and tin plate. France sent more iron and steel products to the United States in July than did Belgium, that country being exceeded for the first time in several months. Cast iron pipe imports made up most of the tonnage from France.

Imports from the United Kingdom dropped from 11,623 tons in June

ORIGIN OF PIG IRON IMPORTS

Gross Tons

From:	July	June
Mexico	31	44
Germany	300	55
Netherlands	2,325	894
Sweden	355	42
United Kingdom	50	6,726
British India	2,994	.....
Spain	.....	196
Total	6,055	11,799

ORIGIN OF IRON ORE IMPORTS

Gross Tons

From:	July	June
Spain	4,300	6,653
Canada	1,596	303
Cuba	11,000	25,500
Chile	102,000	90,800
Algeria and Tunis	40,760	47,850
Newfoundland	17,300	9,718
Brazil	6,300	8,500
United Kingdom	.....	68
Total	183,256	188,892

ORIGIN OF MANGANESE IMPORTS

Gross Tons

From:	July	June
Java and Madura	292	.....
Soviet Russia in Europe	15,592	4,120
United Kingdom	97	.....
Canada	156	18
Brazil	3,512	3,131
British India	1,799	3,099
British West Africa	.....	2,282
Total	21,447	12,650

ORIGIN OF FERROMANGANESE IMPORTS

(Concentrates)

Gross Tons

From:	July	June
Italy	116	90
Norway	279	1,127
United Kingdom	757	1,357
Canada	1,739	3,256
France	.....	40
Total	2,891	5,870

ORIGIN OF IMPORTS

Gross Tons

From:	Steel bars	Cast iron pipe	Steel scrap	Ingots, blooms, etc.
Austria	17	.....	.....	8
Belgium	1,554	1,791	.....	128
France	876	5,933	.....	713
Germany	1,522	.....	399	49
Canada	31	5	3,063	1
Sweden	686	.....	89	234
United Kingdom	181	2	14	79
Netherlands	105	.....	.....	.....
Czechslovakia	10	.....	.....	5
Norway	10	.....	.....	.....
Italy	.....	.....	23	.....
British West Indies	.....	.....	100	.....
Totals	4,992	7,731	3,688	1,217

IMPORTS OF IRON AND STEEL

Gross Tons

Item:	July 1928	June 1928	January through July 1928	January through July 1927
Pig iron	6,055	11,799	81,350	70,696
Ferromanganese and alloys (1)	2,891	5,870	27,296	15,152
Ferrosilicon (2)	332	747	2,424	5,856
Ferrochrome (3)	59	76	397	382
Scrap	3,688	7,715	26,529	37,182
Iron slabs	....	....	4	....
Steel ingots, blooms, billets, etc.	1,217	2,054	13,083	7,65
Steel bars	4,992	5,742	55,304	56,522
Iron bars	35	418	1,385	2,807
Wire rods	595	1,119	10,012	7,490
Hoops, bands and scrolls	893	1,224	11,423	20,139
Boiler and other plate	198	2,215	3,355	2,728
Sheets, skelp and saw plate	1,160	2,110	15,999	9,068
Tin plate	159	42	751	923
Structural shapes	11,192	14,438	99,878	87,942
Rails and splice bars	1,534	3,282	11,180	10,714
Cast iron pipe	7,731	2,525	39,248	54,926
Other pipe and tubes	2,918	2,773	23,973	39,185
Barbed wire	226	183	1,975	2,971
Round iron and steel wire	408	344	2,430	2,723
Steel telegraph and telephone wire	10	25	163	31
Flat wire and strip steel	132	103	1,294	1,606
Wire rope and strand	168	184	971	1,520
Other wire	42	1	320	291
Nails, tacks and staples	1,020	688	4,863	4,006
Bolts, nuts, rivets and washers	11	17	154	184
Castings and forgings	164	125	1,964	1,796
Total	47,830	65,819	437,725	442,469

(1) Manganese content.
(2) Silicon content.
(3) Chromium content.

IMPORTS BY COUNTRIES OF ORIGIN

Gross Tons

	July 1928	January through July 1928	January through July 1927
Austria	26	186	662
Belgium	10,592	117,805	125,235
Czechoslovakia	16	955	2,843
Denmark	1	205	89
France	10,882	77,317	76,322
Germany	5,917	67,593	84,366
Italy	139	392	293
Netherlands	2,659	18,109	18,225
Norway	400	4,735	5,756
Sweden	1,972	15,779	13,051
United Kingdom	3,028	59,110	38,722
Canada	6,010	39,539	43,675
Mexico	64	387	207
Other British West Indies	100	100	.....
British India	2,994	27,074	20,719
Japan	30	64	17
Hungary	.....	141	.....
Spain	.....	197	30
Switzerland	.....	26	24
Cuba	.....	15	2,189
Dominican Republic	.....	806	21
Ecuador	.....	700	.....
China	.....	3	.....
Virgin Is. of U. S.	.....	3	31
Syria	.....	13	.....
New Zealand	.....	2,001	.....
Morocco	.....	5	.....
Poland and Danzig	.....	3,193	.....
Panama	.....	381	19
Jamaica	.....	628	.....
Other countries	.....	.....	1,870
Totals	47,830	437,725	442,469

to 3028 tons in July. Canada and Belgium both sent less iron and steel products to the United States in July, the former's shipments dropping 4000 tons and the latter's 3000 tons. The imports from France, however, increased in July, gaining about 1500 tons, while those from Netherlands made approximately the same increase. Imports from Germany lost slightly less than 1000 tons in July.

EXPORTS OF IRON AND STEEL

Gross Tons

Item:	July 1928	June 1928	January through July 1928	January through July 1927
Pig iron, not including ferro-alloys	8,598	5,674	33,927	26,721
Ferromanganese and spiegeleisen	1,137	338	5,998	391
Scrap	43,783	64,918	294,238	122,209
Ingots, blooms, skelp, etc	16,020	5,198	72,950	49,951
Iron bars	471	158	2,289	3,113
Steel bars	13,899	13,816	84,667	65,921
Alloy steel bars	1,102	1,276	8,594	3,452
Wire rods	3,638	4,818	22,117	9,291
Plates	14,648	14,529	86,374	81,561
Galvanized sheets	15,341	10,420	90,417	101,050
Black steel sheets	19,150	19,223	109,461	106,402
Black iron sheets	1,355	1,612	8,843	10,143
Hoops, bands and strip steel	4,988	4,820	32,685	28,547
Tin plate, terne-plate, etc	21,528	22,276	146,627	172,612
Structural shapes, plain material	14,509	19,356	104,382	79,366
Structural materials, fabricated	14,156	11,476	56,450	37,528
Metal lath	574	445	2,883	2,729
Steel rails	11,079	12,483	120,665	112,645
Rail fastenings, switches, frogs, etc	2,487	1,998	30,061	20,517
Boiler tubes and welded pipe	23,142	21,281	138,360	166,643
Malleable iron screwed pipe fittings	1,072	1,605	6,967	6,025
Cast iron screwed pipe fittings	710	483	3,701	3,978
Cast iron pressure pipe and fittings	598	1,031	7,384	7,121
Cast iron soil pipe and fittings	1,225	1,587	8,810	5,031
Plain wire	3,265	4,660	26,966	19,540
Barbed wire and woven wire fencing	5,542	7,000	43,969	28,634
Wire cloth and screening	216	169	1,062	1,370
Wire rope	386	430	2,964	2,724
Insulated wire and cable	84	36	372	273
Other wire and manufactures of	1,060	786	5,634	5,987
Wire nails	1,425	1,300	10,032	4,765
Nails, other than wire	784	1,045	5,648	4,252
Tacks	53	46	454	566
Horseshoes	64	26	269	285
Bolts, nuts, rivets, except track	1,262	1,281	7,762	6,959
Car wheels and axles	944	1,702	8,568	11,027
Iron castings	776	754	7,162	6,729
Steel castings	1,097	812	6,337	4,732
Forgings	1,168	1,184	6,029	3,269
Total	253,336	262,052	1,612,078	1,323,959

DESTINATION OF EXPORTS

Gross Tons

Country of destination	July 1928	January through July 1928	January through July 1927
North and Cent. America, West Indies	121,340	771,929	653,574
Canada and Newfoundland	100,341	635,519	501,258
Cuba	6,289	37,524	51,999
Mexico	6,976	46,774	52,609
Guatemala	264	6,099	4,750
Panama	1,192	9,700	12,550
Salvador	307	2,193	2,924
British West Indies	514	4,882	8,642
Other West Indies	4,398	19,433	11,194
Other Cent. America	1,059	9,805	7,648
South America	38,366	257,891	219,120
Argentina	6,544	57,743	51,289
Brazil	9,527	50,935	46,594
Chile	4,157	40,292	19,879
Colombia	7,391	42,597	37,323
Peru	900	14,288	22,239
Uruguay	354	5,438	7,161
Venezuela	9,239	43,209	32,974
Other South America	254	3,389	1,661
Europe	32,301	182,035	114,710
Belgium	1,690	8,987	2,604
France	440	2,946	3,361
Greece	16	1,884	2,397
Italy	8,274	52,375	37,142
Netherlands	99	1,432	1,821
Russia	407	1,976	4,196
United Kingdom	5,010	31,464	43,181
Other Europe	16,365	80,971	20,008
Far East	60,189	391,178	324,442
British Malaya	442	3,856	6,487
China	6,723	64,258	35,751
Dutch East Indies	3,690	17,741	23,701
India and Ceylon	764	14,326	16,059
Japan and Chosen	28,589	210,161	167,503
Kwangtung	1,498	4,479	15,578
Philippine Islands	11,093	55,128	33,963
Australia	1,610	9,195	16,556
New Zealand	164	1,211	725
Other Asia and Far Eastern markets	5,616	10,823	8,119
Africa	1,140	9,045	12,113
British South Africa	333	3,814	5,258
Egypt	323	3,406	2,861
Mozambique	311	790	3,189
Other Africa	173	1,035	805

DESTINATION OF JULY IRON AND STEEL EXPORTS

Gross Tons

	Rails	Galvanized sheets	Plates not fabricated	Tin, terne plate	Steel sheets black	Barbed wire	Steel bars	Steel scrap
Argentina		351	12	1,937		716		410
Australia		12	2		236			
Brazil	2,638	2,185		1,595		1,088	212	
British India		11						
British Malaya				76				
British S. Africa		48				63		
Canada	2,863	2,728	12,160	5,601	8,009	157	7,653	12,690
Central America		404	15		3	196	292	
Chile	436	27		299				
China		803		2,930			749	948
Colombia	471	1,347	85	156		541		
Cuba	776	476	125	602		488	505	
Dutch East Indies		811						
Dutch West Indies				107				
Europe			7		301		28	
Other Europe		403		575				
Italy				332				7,458
Japan	418	290	433	4,807	8,342		114	6,541
Java and Madura				39				948
Kwantung								345
Mexico	20	859	83	675	270	564	57	1,091
Norway		109						
Panama			252					
Peru	56			74			264	
Philippine Islands	2,424	2,857		712	548	379	95	
Poland								13,947
United Kingdom					29		2,215	443
Uruguay				75				
Venezuela	826			13				
	11,079	15,341	13,605	21,528	19,150	4,945	13,899	43,783

Locates in Cleveland

Permanent headquarters of the Gray Iron institute, organized recently to promote the interests of the gray iron foundry industry, have been established in the Terminal Tower building, Cleveland. The building is a portion of the union station development on the Public Square in Cleveland and with a hotel immediately at hand, headquarters can be reached without leaving the hotel or station buildings. Walter L. Seelbach, Forest City-Walworth Run Foundries Co., Cleveland, is president of the institute and Arthur J. Tuscany is manager.

In 1812 an Englishman named Osborn took out a patent covering machinery for hammer welding of iron and steel tubes from bent plates.

Exports of Metal Working Machinery

(In number except where otherwise specified)

	July 1928	July 1927	January through July 1928	January through July 1927
Engine lathes	52	60	469	354
Turret lathes	36	69	265	164
Other lathes	115	32	465	245
Vertical boring mills and chucking machinery	11	6	68	71
Thread-cutting and automatic screw machines	65	93	513	493
Knee and column type milling machines	28	27	203	136
Other milling machines	62	44	432	235
Gear-cutting machines	35	62	227	239
Vertical drilling machines	109	20	379	152
Radial drilling machines	6	8	86	49
Other drilling machines	375	67	787	933
Planers and shapers	24	24	251	232
External cylindrical grinding machines	99	48	573	388
Internal grinding machines	39	43	334	250
Metalworking tool-sharpening machines	55	53	379	450
Other metal-grinding machines, pounds	64,588	147,090	1,009,843	688,358
Forging machinery, pounds	251,069	276,216	1,986,109	2,261,314
Sheet and plate metalworking machines, pounds	790,213	661,894	5,234,218	2,945,245
Rolling-mill machinery, pounds	531,035	511,237	5,269,342	4,882,644
Foundry and molding equipment, pounds	1,209,813	419,185	5,762,698	3,642,634
Other power-driven metalworking machinery and parts, pounds	720,114		5,321,497	
Pneumatic portable tools	1,815	1,732	11,681	11,118
Other portable and hand or foot operated metalworking machines and parts, pounds	71,800	41,533	603,008	384,544
Chucks for machine tools	2,426	1,122	9,481	9,841

Here and There in Industry

Timely Information Which Records Developments in Various Lines of Productive Enterprise

CHARLES T. TOPPING MACHINERY CO., manufacturer of excavating machinery, has moved its offices from Dayton, O., to 4403 St. Clair avenue, Cleveland. The company manufactures a traction-driven trench excavating machine for oil and gas line construction, utilizing a tractor for power plant. Arrangements have been made for enlarged manufacturing facilities to turn out a larger volume. Charles T. Topping is president.

* * *

OHIO NUT & BOLT CO., Berea, O., has elected the following officers: President and treasurer, R. J. Whelan; vice president,, H. G. Wilkinson; secretary, R. A. Crawford.

* * *

GREAT LAKES CHEMICAL WORKS, Detroit, has opened a sales office at 2509 Terminal Tower building, Cleveland. A. E. Lewis is vice president in charge of the Cleveland district.

* * *

R. J. DOWD KNIFE WORKS, Beloit, Wis., has been taken over by the A. J. Simonds-Dayton Co., Dayton, O. The company was established in 1857 by the late R. J. Dowd and has been owned by his family continuously since.

* * *

WILCOX-RICH CORP. is being organized by H. L. Flintermann, Detroit, president of the Wilcox Products Corp. and the Rich Products Corp., to absorb both companies. Stock of the two companies is to be exchanged for stock in the new concern, subject to approval of stockholders at meeting to be held Sept. 18.

* * *

AFINKL & SONS CO., Chicago, manufacturer of die blocks and drop forging accessories, has appointed J. M. Curley its representative for eastern territory, with headquarters at 292 Main street, Cambridge, Mass. He succeeds the late W. L. Goodrich, with whom he was associated for several years in the sale of the company's products.

* * *

ERIE CITY IRON WORKS, Erie, Pa., has appointed Alan G. Cary & Co., St. Paul, its 'representative in that territory. A. G. Cary of that firm has long been identified with mechanical and power plant equipment, for 16 years with the Robinson, Cary & Sands Co., St. Paul, and then with his own company, organized to sell railroad, industrial and power plant equipment.

* * *

RITTER DENTAL MFG. CO. INC., Rochester, N. Y., has bought the entire assets of the Electro Dental Mfg. Co., Philadelphia. Manufacture of the latter's line will be continued at Philadelphia until an addition to the plant at Rochester is completed, and then removed there. John S. Wilford continues as president of the Electro Dental Mfg. Co. and manager of manufacturing operations at Philadelphia.

* * *

INSTITUTE OF SCRAP IRON AND STEEL has opened headquarters in the Salmon Tower building, 11 West Forty-second street, New York. Benjamin Schwartz, director general of the institute, will begin work at once on the recently adopted program, which calls first for the establishment of an organization for arbitration of disputes, arranging of a national conference for the adoption of a code of business practices under the auspices of the federal trade commission, organization of 11 chapters in the major cities of the East, and an extensive membership campaign.

* * *

CHAIN BELT CO., Milwaukee, is retiring its preferred stock and 120,000 shares of no par common stock, all outstanding, now represents the entire capitalization of the company. This stock has been listed on the Chicago stock exchange. Net sales of the company in 1927 exceeded $6,000,000, and this rate is being exceeded this year. The company was founded in 1891 with $11,000 capital by C. W. Levalley, F. W. Sivyer and W. A. Draves, with a working force of three men. Now it includes 1200 employes and 317,000 square feet of floor space. In 12 years the company's business has increased seven times. C. R. Messinger continues as president. C. F. Messinger is first vice president, J. C. Merwin second vice president, C. L. Pfeifer treasurer, Brinton Welser secretary and G. K. Viall assistant to the president. W. C. Frye, president from 1916 to 1923, is an active director.

* * *

EGAN, WEBSTER & CO. INC., 50 Broadway, New York, sellers of fire clay, fire brick, molding sand and silicon sand, has moved its main office to 1402 Oliver building, Pittsburgh.

* * *

LOCKITE CO., Iron Mountain, Mich., which was formed recently with $24,000 capital, is producing a patented electric light socket and other articles. E. W. Stridde is president, S. A. Clemetson general manager, M. J. Fox vice president and E. C. Hedlund secretary.

* * *

CALIFORNIA SPRAYER CO., Los Angeles, manufacturer of dusts and dusters for fruit spraying, is building an addition to double its plant. Additional punch presses and lathes will be installed and grinding and dehydrating equipment will be increased.

* * *

IMPROVEMENT EQUIPMENT CO., New York, and Russell Engineering Co., East St. Louis, Ill., have merged under the control of Henry L. Doherty & Co., New York, and will be known as the Improved Equipment-Russell Engineering Corp. The company will install gas plants and manufacture carbonizing equipment.

* * *

ALUMINUM CO. OF AMERICA has presented to the Byrd Antarctic expedition a spare aluminum propeller for use on one of the planes in connection with exploration work at the South Pole. This blade, fabricated by the Standard Steel Propeller Co., Pittsburgh, is of the 3-blade type and is to be used on the Fairchild plane.

By-Product Coke Ovens Use Much Coal

By-product coke ovens in July consumed 5,619,000 net tons of coal to make 3,911,082 tons of by-product coke, states the federal bureau of mines. In the same month beehive coke ovens consumed 427,000 tons of coal and made 271,000 tons of coke.

Obituaries

JAMES BOWRON, 84, chairman of the board of directors of the Gulf States Steel Co., Birmingham, Ala., patron of the arts and a world-wide traveler, died in Birmingham Aug. 25, after an illness of several weeks, following a recent tour of Africa. Mr. Bowron was born in Stockton-on-Tees, Durham county, England, and came to the United States in 1877. He began his industrial career in England working in the glass trade, later taking up mining, railway, mercantile and insurance businesses. Mr. Bowron became a naturalized citizen of the United States in 1885 and in 1886 became connected with the South Pittsburg, Tenn., Pipe Works. From 1895 to 1898 he was president of that company. He served as officer in various other companies, among them being the Dimmick Pipe Co., Tennessee Coal, Iron & Railroad Co. and the Standard Steel Co. He organized the Gulf States Steel Co. and became its president in 1913. Sometime later on he was advanced to chairmanship of the board of directors. Mr. Bowron's travels took him to nearly all corners of the earth. Many times he toured Europe, the east and west coasts of Africa as well as the interior, and the Far East. For many years, he was connected with the industrial life of the South. Mr. Bowron was a member of the American Iron and Steel institute.

* * *

C. L. N. Haines, president of Muskogee Iron Works, Muskogee, Okla., died Aug. 22, aged 55.

* * *

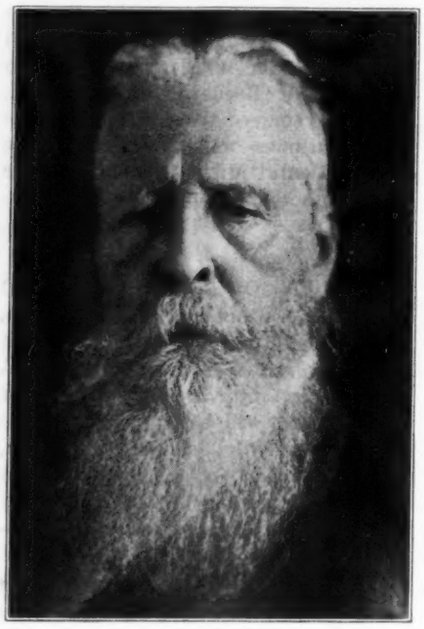
John R. Tate, 84, for many years identified with the iron and steel industry in the Lehigh valley of Pennsylvania, died Aug. 23 in Detroit. For considerable time he was chief mechanic of the Union Foundry & Machine Co., Catasauqua, Pa. His son, Frank M. Tate, is a director and operator of public utility companies in New York.

* * *

A. C. Rulofson, for 60 years prominently identified with the hardware and steel industry on the Pacific Coast, died Aug. 11 in Oakland, Calif., after an illness of ten months, aged 74. For the past 25 years he was the head of A. C. Rulofson Co., Pacific Coast representative for the Pittsburgh Steel Co., the U. S. Chain & Forge Co., and the Illinois Malleable Iron Co. Prior to this he was associated with the Huntington-Hopkins Co. and the Baker & Hamilton Co. for 35 years and was manager of the latter company when he resigned to form his own company.

Getting Tungsten Costs

Washington, Aug. 28.—Field work by experts of the tariff commission on the tungsten investigation is proceeding satisfactorily, according to officials of the commission. Co-operation is being shown by the domestic industry in connection with the gathering of domestic costs of production.



Blank & Stoller Photo

JAMES BOWRON

No final action has yet been taken by the commission in connection either with the fluorspar or manganese ore surveys.

CanadianOutputDevelops Loss in July

Production of pig iron in Canada in July was 95,422 long tons, a decline of 2 per cent from 97,379 tons in June but a large increase over the 50,997 tons of last July. Compared with June, foundry iron advanced to 36,393 tons from 25,968 tons, basic iron dropped to 57,397 tons from 69,040 tons, and malleable iron declined to 1632 tons from 2371 tons.

For the 7 months ending with July cumulative production totaled 565,435 tons, an increase of 24 per cent over the 454,710 tons for the corresponding period of 1927.

Production of steel ingots and direct steel castings in July at 82,807 tons was 29 per cent below the 116,530 tons for June but 50 per cent above the 55,250 tons for July, 1927. Decreased output of basic open hearth steel ingots accounted for the decline; this grade dropped to 78,528 tons from 116,324 tons. For the seven months ending July, cumulative production amounted to 731,145 tons, against 542,560 tons in the corresponding period of last year.

July Plate Orders Gain

Washington, Aug. 28.—New orders for fabricated steel plate in July increased somewhat over the June total, figures from the department of commerce show. Monthly comparisons follow:

	*Total	Oil storage tanks	Gas holders	Blast furnaces	Stacks and miscellaneous
1926 (year)	513,913	175,367	47,524	14,406	196,849
1927					
July	35,326	17,199	1,034	537	14,274
Total, 7 mos.	300,379	124,927	25,734	4,378	109,876
Aug.	48,577	29,691	3,504	481	11,385
Sept.	38,662	15,421	2,254	873	14,576
Oct.	47,090	18,648	3,252	385	11,599
Nov.	27,341	8,920	978	422	10,794
Dec.	35,648	13,367	3,490	385	13,088
Total (year)	497,697	210,974	39,212	6,924	171,318
1928					
Jan.	35,787	8,758	2,062	1,225	16,412
Feb.	49,820	25,532	3,679	143	15,420
March	46,840	25,226	1,897	699	14,683
April	50,347	22,095	4,654	619	16,265
May	42,376	14,849	4,636	202	17,768
June	*35,202	*12,204	3,225	778	15,803
July	36,163	16,881	1,848	499	12,363
Total, 7 mos.	296,535	127,888	22,001	4,165	109,714

*Revised

Consume Less Babbitt

Washington, Aug. 28.—July total apparent consumption of babbitt metal declined somewhat from June, statistics furnished by the department of commerce show. Monthly comparisons follow:

	Total apparent consumption	Sold by manufacturers	Consumption by producers
	(Figures given in pounds)		
1927			
July	4,604,786	3,162,325	1,442,161
Tot. (7 mos.)	35,735,478	28,048,602	7,686,876
August	5,496,659	4,488,895	1,007,764
September	4,792,367	4,116,525	675,842
October	5,115,598	3,860,239	1,255,359
November	4,505,954	3,320,205	1,185,749
December	4,465,787	3,169,493	1,296,294
Total, 1927	60,111,843	47,003,959	13,107,884
1928			
January	4,928,517	4,034,352	894,165
February	4,470,368	3,443,694	1,026,674
March	4,927,634	3,903,071	1,024,563
April	4,842,656	3,724,691	1,117,965
May	4,606,899	3,578,422	1,028,477
June	4,731,023	3,625,347	1,105,676
July	4,692,825	3,792,887	899,938
Tot. (7 mos.)	33,199,922	26,102,464	7,097,458

Heavy Orders Placed in Britain

Export Business in Railroad Rolling Stock Features Market—Contract Booked for $3,600,000 Worth of Electrical Equipment—1,000,000 Boxes of Tin Plate Reported Placed—Belgian Steel Prices Approaching Peak

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, Aug. 28.—Substantial orders for railroad rolling stock for export are being placed in the Birmingham district. Barrow steel mills have obtained some domestic and foreign railroad contracts. The Metropolitan Vickers Electrical Co. has booked an order for £750,000 of electrical equipment for delivery to New South Wales.

Demand for boiler plates is reported to be better. An order for 1,000,000 boxes of tin plate is reported to have been placed with British mills. Some improvement is noted in the market for hematite; 1500 tons was shipped recently to Italy. Inquiries for special brands of pig iron are being received from America.

A report from Berlin states export demands are increasing, and prices are stronger. Domestic business is falling off. The United States Steel Co. is closing some of its sheet mills. Henschel & Son Co. have obtained an order for five locomotives for delivery to Denmark. British consumers are buying substantial tonnages of Belgian sheet bars. Steel prices generally in Belgium are approaching the peak. The market in France is firm and active.

British Steel Trade Has More Hopeful Outlook

Office of IRON TRADE REVIEW,
Prince's Chambers, Corporation St.

BIRMINGHAM, Eng., Aug. 17.—(*European Staff Service*)—The tone of the iron and steel trade is hopeful in spite of some discouraging circumstances and well-informed authorities still believe in an expanding autumn trade. Statistics of output continue to register degreases. Production of pig iron in July was 537,800 tons and of steel ingots and castings 666,900 tons. In pig iron this is the lowest output of the year and is consequent upon the drastic cut in the number of operating Scotch furnaces which coincided with the northern summer holidays. Apparently there is a turn in the tide as Dorman Long announce that two more furnaces will be blown in immediately, one for the production of hematite and the other for ferromanganese. A good deal of pressure has been exercised upon the pig iron makers to reduce prices, but this has been firmly refused, and the pig makers have every hope that they will get through without lower prices.

Sterling $4.85

In the Barrow district eleven furnaces are still in operation and makers there express confidence that a turn for the better may be expected by the end of the month. At present stocks are rather heavy, but increased activity will result from the rolling of more railway material. The Barrow works are to restart within the next week or two, with a prospective run until the end of the year. The firmness of prices gives ground for hopefulness.

No improvement has taken place in the values of Midland brands, Northampton and Derbyshire and Staffordshire pigs retaining the low level which has been a feature all summer.

Following the order for all-steel wagons which came out last week, a miscellaneous lot of locomotives and special rolling stock has been given out. Railways have been much encouraged by heavy holiday traffic, and

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, August 27	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON	£ s d		£ s d		£ s d		£ s d	
Foundry No. 3, Silicon 2.50-3.00	$16.01	3 6 0*	$15.28	3 3 0	$15.28	3 3 0	$15.76	3 5 0
Basic	15.76	3 5 0	15.28	3 3 0	15.28	3 3 0	15.28	3 3 0
Basic-bessemer	16.73	3 9 0†	14.55	3 0 0	14.55	3 0 0	14.55	3 0 0
Hematite, Phosphorus 0.02-0.05	16.61	3 8 6	22.09	565*	.....	.....	16.98	3 10 0
SEMIFINISHED STEEL								
Billets	$29.10	6 0 0	$23.77	4 18 0	$23.77	4 18 0	$23.97	4 18 0
Wire rods	41.23	8 10 0	29.10	6 0 0	29.10	6 0 0	29.59	6 2 0
FINISHED STEEL								
Standard rails	$37.59	7 15 0	$30.92	6 7 6	$30.92	6 7 6	$30.82	6 7 6
Merchant bars	1.55c	7 2 6	1.31c	5 19 0	1.31c	5 19 0	1.31c	5 19 0
Structural shapes	1.60c	7 7 6	1.08c	4 18 0	1.08c	4 18 0	1.09c	4 19 0
Plates, ship, bridge and tank	1.76c	8 2 6	1.41c	6 8 0	1.41c	6 8 0	1.41c	6 8 0
Sheets, black, 24 gage	2.17c	10 0 0	2.22c	10 15 0	2.22c	10 15 0	2.19c	9 19 0
Sheets, galvanized, 24 gage, corrugated	2.90c	13 7 6	2.98c	13 11 3	2.98c	13 11 3	2.93c	13 6 0
Bands and strips	2.22c	10 5 0	1.52c	6 18 6	1.52c	6 18 6	1.43c	6 10 0
Plain wire, base	2.12c	9 15 0	1.54c	7 0 0	1.54c	7 0 0	1.60c	7 5 0
Galvanized wire, base	2.93c	13 10 0	1.98c	9 0 0	1.98c	9 0 0	2.01c	9 3 0
Wire nails, base	2.38c	11 0 0	1.62c	7 7 6	1.62c	7 7 6	1.65c	7 10 0
Tin plate, base box 108 pounds	$ 4.42	0 18 3	.....	.....	.....	.....	$ 6.79	1 8 0

*Francs

Domestic Prices at Works or Furnace—Last Reported		Francs		Francs		Marks
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$16.01	3 6 0	$17.20	440(2)	$16.29	585	$18.60	78
Basic pig iron	15.76	3 5 0	18.57	475(1)	15.03	540	20.98	88
Furnace coke	3.15	0 13 0	5.87	150	5.15	185	5.13	21.50
Billets	29.10	6 0 0	21.70	555	25.72	925	28.85	121
Standard rails	1.79c	8 5 0	1.48c	820	1.43c	1,100	1.51c	140
Merchant bars	1.57c	7 5 0	1.28c	710	1.33c	1,025	1.52c	141
Shapes	1.71c	7 17 6	1.17c	650	1.31c	1,010	1.49c	138
Plates, ship, bridge and tank	1.87c	8 12 6	1.54c	855	1.50c	1,150	1.71c	158
Sheets, black, 24 gage	2.28c	10 10 0	2.92c	1,620	2.33c	1,880	2.43c	225
Sheets, galvanized 24 gage, corrugated	2.90c	13 7 6	3.41c	1,895	3.87c	2,975	3.78c	350
Plain wire	2.12c	9 15 0	1.71c	950	1.95c	1,500	2.48c	230
Bands and Strips	2.22c	10 5 0	1.41c	785	1.69c	1,300	1.77c	164

*Middlesbrough; †Scotch foundry iron; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 13s 0d ($3.16) f. o. b. Ferromanganese £21 10s 0d ($104.49) delivered Atlantic seaboard, duty paid. German ferromanganese £15 0s 0d ($72.90) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

they are now showing enterprise by cutting a number of fares, which indicates a determination not to take quietly the severe blows they have received from motor companies. Occasionally, big orders are coming out which appear to indicate that the financial recovery of principal customers awaited since the war is really on the way.

A notable order booked this week is for 10,000 tons of cast iron pipe which has found its way to the Stanton Ironworks Co. of Nottingham. This company has had an extraordinary run of prosperity since it specialized some years ago on rotary casting of pipe and, latterly, it has remodeled its blast furnaces and brought the plant completely up to date, with the result that it is now probably as well equipped as any company for handling business on an international scale. The contract has been taken with a Buenos Aires firm in competition and strong efforts to secure it were made by Belgium and Germany. The General Electric Co. Ltd. of London has secured a contract for electric cable for Sydney to the value of nearly £150,000.

Miscellaneous structural work is appearing, but a good deal more is overdue, and buildings in Birmingham and other centers are so deficient in equipment that a suggestion has been made that leases which have another 30 years to run should immediately be extended to enable the necessary improvements to be taken in hand. Some big factory jobs are about, but at present the run is on cinemas and similar places of amusement, for which one Birmingham firm alone has eight contracts.

Shipbuilders have shown more enterprise lately in giving out some big liners of which a notable example is a 60,000-ton vessel for the White Star to be built by Harlan & Wolff.

Apparently the Continent, after being our greatest obstacle for some years, is now filling the role of stimulant to British trade. Continental works are reported filled until November and Midland steelworks now frankly admit their competition comes from their own class and not from the foreigner. All the steelworks are doing better and great benefit has been derived from billet orders given out by British rerollers. Most steelworks have gathered in some orders from these sources.

Among new uses pending for steel will be pit props on which mining engineers have invited submission of specimens, the idea being to supersede timber supports.

South Staffordshire has shown greater activity lately mainly as the result of inability of several industries to take advantage of cheap continental material. Makers of marked bars are turning out larger quantities than for some time and are usually able to put in a full week's work. Much of this best iron is wanted for locomotive parts, cables, chains, engine shafting and a variety of construction work.

Galvanized sheets remain in moderate demand at £13 7s 6d ($64.86) to £13 10s ($65.46), but July exports compare badly with those of a year ago, the total for the seven months being 403,969 tons, compared with 448,828 tons last year. Tin plates are rather better on the month and for the seven months the figure of 314,285 tons shows a fairly substantial increase over the total of 292,474 tons for the same period last year. The unsatisfactory feature of the board of trade's return for July is the reduction in exports.

The general shutdown for which the August bank holiday week was utilized in the tin plate trade is considered to have served its purpose and the next stoppage is not anticipated before the last two weeks in the last quarter. The present stable price of 18s 3d ($4.42) per box is considered to have been retained largely as the result of this regulation of output.

Some good inquiries are in the market but they materialize rather slowly. Some merchants have endeavored to cut the price of tin plates down to 18s ($4.36) but the effort has not been successful, though in some cases 18s 1½d ($4.39) is said to have been accepted.

Heavy scrap still commands a fair market at £3 7s 6d ($16.36) to £3 10s ($16.96), Welsh steelmakers requiring more material for melting mainly as the result of improved billet orders.

German Plant Slower

Berlin, Aug. 18.—(*European Staff Service*)—The United Steel Works Corp. of Germany has issued its production figures for third quarter of the financial year 1927-28, covering the period April-June of this year. The output of coal was 6,289,600 metric tons, against 6,897,000 tons in the corresponding quarter of last year. The output of coke was 2,301,959 metric tons, as compared with 2,231,001 tons. The output of pig iron was 1,541,871 metric tons, as against 1,703,105 tons, and that of steel was 1,619,150 tons, as compared with 1,842,187 tons. These figures show that production during the quarter under review was smaller this year than in the same period of 1927. On June 30 this year the number of workmen employed by the corporation was 177,090, as against 182,014 on June 30, 1927; of this year's figure, 85,520 were employed in the coal mines. The staff numbered 15,530, as compared with 15,813 last year. During the quarter under review the turnover of business with concerns not controlled by the company amounted to 339,797,463 marks ($81,000,000), as against 360,897,725 marks ($86,000,000 in the corresponding quarter of 1927; of this year's figure, 123,186,486 marks ($29,250,000) were for export business. This compares with 114,939,629 marks ($27,400,000) last year, and shows that whereas domestic business has declined, export business has increaed in value. During the quarter considered four blast furnaces were blown out and one stack blown in.

Paul V. Sheehan has been appointed receiver of the Perfect Radiator Cover Co., Inc., 250 West Fifty-fourth street, New York, with liabilities of $18,832 and assets of $2495.

Belgian Steelmaker Is Making Profit

Brussels, Aug. 17.—(*European Staff Service*)—Stockholders of Societe Anonyme d' Ougree-Marihaye find results of the financial year ending April 30, 1928, satisfactory. Profits amounted to 123,453,711 francs ($3,440,000), of which 1,492,667 francs ($41,500) were brought forward from the preceding year. A dividend of 200 francs ($5.55) was declared and 1,953,711 francs ($54,000) were carried forward.

Reviewing the activities of the concern during the year, it was stated that the lighting of the new coke ovens at Ougree was satisfactorily effected, and the improvements brought about in the plant have resulted in a decrease of production costs. The manufacture of alloy steels has been developed at Ougree, and also the manufacture of railroad material. Work has been done to protect the Ougree plant against future floods.

The concern owns collieries at Ougree and at Marihaye. It was stated that at Ougree the production of coal was slightly less in the year under review than in the preceding year, and 21.50 per cent less than in 1913-14, while the daily output per man in the mines was 26.39 per cent less than in 1913-14. At Marihaye coal extraction slightly increased during the year under review, but was 29.76 per cent less than in 1913-14.

The concern owns ore deposits at Rodange, and production has been satisfactory. The mines now are completely electrified, and the surplus current is being sold to the recently-formed union of electric power houses, which markets the current in the towns of Liege, Namur, in Belgium, and Luxemburg. Further developments of this scheme are being studied.

Ougree-Marihaye owns interests in various other iron and steel firms, particularly Societe Anonyme des Hauts-Fourneaux de la Chiers, Societe Anonyme des Forges de Vireux-Molhain, Societe Anonyme des Usines a Tubes de la Meuse, and Societe Anonyme des Hauts Fourneaux et Acieries de Differdange, and the results of production and trade of these various concerns have been satisfactory.

The company has acquired an interest in the wire mills of Leon Beckaert and in Societe Sambre-Escaut, and has acquired the Trefileries de Ruysbroeck. The results obtained have been satisfactory, although there is keen competition owing to the fact that one wire mill has remained out of the Belgian syndicate and occasionally cuts prices. The concern also has acquired an interest in Societe Anonyme Alliance-Monceau and the Societe Commerciale de Belgique, which handles the sales of this firm.

Freight cars on class I railroads in need of heavy repairs Aug. 1 totaled 108,421 or 4.8 per cent, an increase of 192 compared with July 15, while freight cars in need of light repairs totaled 43,466 or 1.9 per cent, a decrease of 211 compared with July 15.

CONSTRUCTION and ENTERPRISE

Concise Timely Business Building Opportunities from Field of Industry

North Atlantic

BRIDGEPORT, CONN.—Homes Products Inc., manufacturer of electric refrigerators, will occupy two buildings of the local plant of Remington Arms Co., leased recently.

NEW BRITAIN, CONN.—American Hardware Co. plans to build a new addition, 30 x 55 feet.

NORWICH, CONN.—American Thermos Bottle Co., Laurel Hill avenue, has awarded the general contract for the construction of its new plant to A. Torrance, Prospect street. (Noted Aug. 23.)

BURNHAM, ME.—Central Maine Power Co., Greene street, Augusta, Me., has awarded the contract for a power plant to Ambursen Construction Co., Grand Central Terminal building, New York.

BALTIMORE—Burns Bottling Machine Works, 2239 Taylor street, manufacturer of automatic soda machinery, plans to build a 1-story plant addition. (Noted July 26).

BALTIMORE—University of Maryland, Lombard and Greene streets, soon will award the general contract for a 6-story laboratory building. Smith & May, Calvert building, are architects.

BOSTON—Thompson Wire Co., Mildred avenue, Mattapan, has awarded the contract for a 1-story plant addition, 55 x 125 feet, to Clark & Smith Inc., 13 Temple street, Quincy.

BOSTON—Cunningham-Jaques Co. has been incorporated with 1000 shares no par value stock to manufacture and deal in machines, attachments to machines, accessories, etc., by Matthew A. Cunningham, Stoughton, Mass.

BRIDGEWATER, MASS.—Henry Perkins Co. plans to build a 1-story foundry on Broad street. The architect is not yet selected.

BROCKTON, MASS.—Eastern Massachusetts railroad, 38 Chauncey street, Boston, plans alterations for its repair shop.

CAMBRIDGE, MASS.—William F. Berkeley Inc. has been incorporated with $50,000 capital to manufacture and deal in plumbing and heating supplies, etc., by William F. Berkeley Jr., 34 Arlington street, Boston.

LYNN, MASS.—Lynn Ornamental Iron Works, 966 Broad street, has awarded the contract for a new shop to L. Chilles, 22 Murray street. (Noted Aug. 23.)

SALEM, MASS.—Park Leather Co., 55 Grove street, plans to build a 1-story boiler house, plant addition.

SOUTH BOSTON, MASS.—Terkelsen Machine Co., 326 A street, Cambridge, Mass., has awarded the contract for a 2-story plant addition to Scully Co. F. E. Leland, 238 Main street, Cambridge, is architect. (Noted Aug. 16.)

BEACHHAVEN, N. J.—The boro council plans to rebuild its 1-story electric plant, 42 x 50 feet, and has awarded the general contract to B. L. Crammern, Beachhaven.

NEWARK, N. J.—General Tube Co., 49 Empire street, manufacturer of sheet iron and other tubing, plans to build a 4-story plant. Part of the building will be used for storage and distributing service. Simon Cohen, 134 Branford place, is architect.

NEWARK, N. J.—Pioneer Iron Works Inc., 317 Frelinghuysen avenue L. J. Siegler, president, plans to build a new plant.

NEWARK, N. J.—Superior Metal Products Inc. has been incorporated with $100,000 capital by Abraham Hochberg, Newark, attorney.

NEWARK, N. J.—Orchard Smelting & Refining Co. Inc. has been incorporated with $100,000 capital to operate iron foundries, etc., by Nicholas Lavecchia, Newark, attorney.

BREWSTER, N. Y.—Quam Brass Mfg. Co. has been incorporated with $5000 capital to manufacture and deal in fixtures, etc., by Ticknor & Ticknor, Mount Kisco, N. Y., attorneys.

BROOKLYN, N. Y.—Brooklyn Union Gas Co., 176 Remsen street, plans to build a coke screening plant, 42 x 104 feet. Koppers Construction Co., Pittsburgh, has prepared the plans.

BUFFALO—Curtiss Aeroplane & Motor Co., Kail street, plans to expand its plant to care for an increase in production. Construction plans will come up in the fall.

CALEDONIA, N. Y.—H. E. Holbrook Co., manufacturer of builders' hardware, plans to rebuild that portion of its plant burned in a recent fire.

NEW YORK—Packard Motor Car Co. of New York is inquiring for steel for column cores for a large garage and service station here.

WHITE PLAINS, N. Y.—Hudson Valley Welding & Contracting Co. has been incorporated with $10,000 capital by W. W. Westall, White Plains, attorney.

BROCKTON, PA.—Huntley Mfg. Co. suffered damage to its foundry building in a recent fire.

NORRISTOWN, PA.—Spicer Mfg. Co., manufacturer of universal joints and drive shafts, has work under way on its 1-story plant addition.

PHILADELPHIA—Swain-Hinchman Co., 3519 Lancaster avenue, manufacturer of automobile parts, plans to build a plant addition.

PHILADELPHIA—Contract for the erection of a plant for J. W. White, manufacturer of insulated wire, 1130-34 Olive street, has been awarded to Frank I. Wentz Inc.

PHILADELPHIA—Bids were opened Aug. 27 for the erection of a laboratory for the University of Pennsylvania, Thirty-sixth and Spruce streets. Tilden, Register & Pepper are architects in charge.

PHILADELPHIA—Brown Instrument Co., Roberts street and Wayne avenue, has awarded the general contract for a 1-story power house addition to Robert E. Lamb Co., 841 North Nineteenth street. Ballinger Co., Twelfth and Chestnut streets, is architect.

PITTSBURGH—Hubbard & Co., 6301 Butler street, manufacturers of hardware, plan to build a 1-story plant addition, 100 x 100 feet.

PITTSBURGH—Standard Sanitary Mfg. Co., Bessemer building, manufacturer of enameled iron and other sanitary ware, has awarded the general contract for a 3-story plant addition to Hossler Bros., Tiffin, O.

Resale News

NAVAL surplus and surveyed material will be sold Sept. 18 at the Philadelphia navy yard by Gus Eighberg, auctioneer. The sale will include about 943 tons of ferrous metals, 185 tons of nonferrous metals, 74,500 feet of wire rope, 368,500 feet of antenna wire, 36 liberty engines, 1987 twist drills, 454 machine bits, electrical material, motor generators, radio materials, small boats, band instruments, cartridges, photographic materials and other items.

* * *

Equipment and machinery of the Jones Mfg. Co., Tulsa, Okla., were sold at auction Aug. 28 under bankruptcy proceedings. The company manufactured oil tools and other specialities.

Sales Calender

Sept. 18—*Auction sale surplus and surveyed naval material at Philadelphia navy yard.*

Western States

BELL, CALIF.—Kobe Inc. has plans for a new plant for the manufacture of oil well supplies. The plant is scheduled to be in operation early in October.

(*Continued on Page* 557)

Machinery

August Closing with Buying of Equipment at a Slower Pace—Dullness Is Seasonal—Volume of Small Orders Is Good

INACTIVITY characterizes the machine tool and shop equipment markets in nearly all districts. With vacations at their height, much business is being deferred. A good volume of one and two-tool orders is being placed, but orders calling for more equipment are scarce. Westinghouse Electric & Mfg. Co. has practically completed buying against its third quarter list. General Electric Co. continues to make small purchases for its Schenectady plant. Bethlehem Steel Corp. has taken six turret lathes for its Bethlehem works. Not much business is forthcoming from railroads, orders from the carriers consisting of single tools of miscellaneous types. The radio industry is a consistent buyer of light machinery, while textiles are still inactive.

New York, Aug. 28.—With perhaps more on vacations than at any other time of the year, the local machine tool market is less active than in weeks. Nevertheless, business is fairly good and optimistic sentiment is expressed by sellers generally over the future. Meanwhile, few sizable orders are noted and include six turret lathes for Bethlehem Steel Corp., Bethlehem, Pa., and seven or eight machines for a department of General Electric Co. at Schenectady, N. Y. These latter include two or three turret lathes, two high-speed drills, a milling machine and a grinding machine. New York Central has brought out three or four tools within the past week, including a milling machine, pipe machine and a drill. Niles Tool Works Co. has booked a 100-ton bushing press and a 90-inch heavy-duty wheel lathe for railroads. This builder has also booked a 114 x 96 x 32-foot planer, a 20-inch shaper; and an 18 x 16-foot lathe. Pratt & Whitney Co. has closed on twelve engine lathes, including four 16 x 36-inch, three 16 x 60-inch, two 13 x 48-inch, two 13 x 30-inch and one 20 x 48-inch. It also has booked five jig borers, four gear shapers and two die sinkers, among other tools. While some look for a better showing in overhead cranes this month, considering the country as a whole, the local crane market remains dull.

Worcester, Mass., Aug. 28.—The machine tool market here is more spotty in some branches, although production and precision tools are moving steadily. Most of the orders are for lighter tools. No large lists are out in this territory, but the sale of indidivual units is holding the total volume up well for this period, in spite of the fact that up to this time expected business has failed to develop. The radio industry is taking a fair number of tools and grinding machinery is steady and sells in good volume to a wide range of industries. Textiles show little change. Another large list of textile machinery went on the used tool market from Rhode Island this week. Inquiries show increase with indications that September will bring new business in lines that have been rather slow.

Pittsburgh, Aug. 28.—Seasonal dullness continues to prevail in the awarding of machine tools. One interest, however, reports receipt of additional orders recently, and a number of inquiries are appearing. The Westinghouse Electric & Mfg. Co. has closed on a grinder, automatic welder and several other tools, and has practically cleaned up its third quarter list. Dealers continue optimistic regarding the outlook for the remainder of the year, believing that pending jobs and those understood to be due to appear soon will call for a fair volume of equipment. The crane market is quiet, and although a number of inquiries are pending, awards are light.

Cleveland, Aug. 28.—While sales in this territory are not as heavy as they have been in the past few weeks, the volume of business is satisfactory and there is every reason to believe that good trading months are in prospect. Automotive interests are not heavy buyers, but they are taking considerable machinery in small lots. Parts makers are consistent buyers. Likewise, general manufacturing interests are good purchasers. A pick-up in both inquiries and orders is expected after Labor day and the close of the vacation season. Much spot business is developing. Used equipment enjoys a steady demand.

Large Steel Tow Starts

Pittsburgh, Aug. 28.—Carnegie Steel Co. shipped its thirty-sixth tow of manufactured steel products to New Orleans and intermediate ports Saturday, with Capt. Cal Blazier in charge. The steamer CITY OF PITTSBURGH will have a tow of 16 barges with more than 15,000 tons of steel plates, shapes, wire, nails, tin plate and other products from the various plants of the company in the Monongahela valley. Two fuel barges will be added, making a total of 18.

CRANE ORDERS PLACED

Six electric overhead cranes, including a 40-ton, 20-ton, 5-ton and three 10-ton, for De La Vergne Machine Co., subsidiary of Cramp-Norris Industrials Inc., Philadelphia; reported going to Niles Crane Corp.

Among single orders were: 3-ton handpower crane for Panama canal commission, Washington, to New Jersey Foundry & Machine Co., this is the second crane to have been awarded by the commission to this company within the past month; 5-ton handpower crane for Valhalla water works, Valhalla, N. Y., to New Jersey Foundry & Machine Co.; 3-ton handpower crane for Palmyra Foundry Co., Palmyra, N. J., to New Jersey Foundry & Machine Co.; 5-ton truck crane for Terry & Tench Co. Inc., Grand Central Terminal, New York, to Browning Crane Corp.; 25-ton standard locomotive crane for Sims Construction Co., Philadelphia, to Browning Crane Corp.

CRANE ORDERS PENDING

Two derrick cars for New York Central and of its own design; bids asked.

Castings Orders Down

Washington, Aug. 28.—New orders for commercial steel castings in July dropped, as noted briefly in IRON TRADE REVIEW last week. Production of castings also was lower in July than in June. Following is a table showing comparisons by months:

	BOOKINGS		PRODUCTION	
Total	†Total net tons	Railway specialties	†Total net tons	Railway specialties
1926	1,035,778	404,945	1,135,955	427,016
1927				
July	74,246	31,011	79,726	32,576
Total, 7 mos.	611,435	261,187	627,949	252,188
Aug.	63,528	21,144	87,004	32,397
Sept.	52,351	18,396	70,024	25,618
Oct.	51,748	16,625	62,409	21,947
Nov.	62,683	27,639	58,997	19,146
Dec.	76,953	39,112	58,220	19,358
Total	918,698	384,103	964,603	370,654
1928				
Jan.	91,072	41,276	74,082	28,714
Feb.	90,677	41,096	87,323	37,719
March	83,285	30,992	93,521	38,448
April	83,737	32,810	85,669	32,619
May	86,414	34,995	92,948	36,599
June	*71,745	22,597	*91,387	30,742
July	66,714	20,483	78,397	27,501
Total 7 mos.	573,644	224,249	603,327	232,342

†For tonnage of miscellaneous castings deduct Railway Specialties from this total.
*Revised.

Canadian Railroad Will Spend Millions

New York, Aug. 28.—Purchase of $10,000,000 to $15,000,000 of railroad equipment is contemplated by the Canadian National Railways according to a statement here by Sir Henry Thornton, president and chairman. He said it would be premature, however, to discuss the forthcoming order at this time.

The Canadian National financed a large equipment order last year with an issue of 4½ per cent equipment trust certificates marketed here. It is pointed out in banking circles that conditions in the money market are not propitious for an offering of that kind now, and that much of the financing involved in a new order might be done in Canada.

Construction and Enterprise

(*Continued from Page* 555)

BERKELEY, CALIF.—California Electric Refrigeration Corp., Jerrold avenue and Napolean street, plans to build a new plant.

LOS ANGELES—Los Angeles Ladder Co., 1630 South Central avenue, manufacturer of ladders, hardware products, etc., has awarded the general contract for a 1-story plant, 150 x 160 feet, to L. R. Armstrong, 144 Glendale boulevard.

PITTSBURG, CALIF.—Columbia Steel Corp. plans to build a tin plate unit.

SAN LUIS OBISPO, CALIF.—State highway department plans to build a maintenance station to include a shop building. C. H. Purcell, Forum building, Sacramento, Calif., is engineer.

DENVER, COLO.—Wensley Metal Products Co., care of Fillius, Fillius & Winters, 402 Midland Savings Bank building, has been incorporated with $100,000 capital by Richard Wensley, Joseph D. Sheftel and Adolph Kiesler.

East Central

CHICAGO—Hurley Machine Co., Twenty-second and Fifty-fourth avenues, manufacturer of electrical domestic appliances, washing machines, etc., is building a new plant addition.

CHICAGO—University of Chicago, L. R. Spears business manager, 189 West Madison street, plans to build a 2-story power house, P. B. Maher, 157 South Dearborn street, is architect.

CHICAGO—Victor Mfg. & Gasket Co., 5750 West Roosevelt road, has awarded the contract for a 4-story plant addition to Schmidt Bros. Construction Co., 22 East Huron street. (Noted Aug. 23.)

CHICAGO—Interstate Iron & Steel Co., 104 South Michigan avenue, has awarded the general contract for the construction of a 3-story transformer station, 50 x 83 feet, to Kritzer Construction Co., 515 West Thirty-fifth street.

EAST MOLINE, ILL.—Deere & Co. has awarded the contract for structural steel for a mill building to Rochester Bridge Co.

EAST ST. LOUIS, ILL.—St. Louis Air Transport & Terminal Co., 6625 Boatmen's Bank building, St. Louis, plans to build an airport, to include hangars, shops, etc.

HARVEY, ILL.—Bliss & Laughlin Inc., manufacturer of steel shafting, etc., plans to build a plant in Buffalo. A site has been acquired and plans will be drawn soon.

STREATOR, ILL.—Streator Cold Storage Door Co., 903 LaRue street, W. M. Harsch president, contemplates building a 1 or 2-story plant addition.

INDIANAPOLIS—Wheeler-Schebler Carburetor Co., D. F. Wheeler, 1302 Barth street, president, contemplates building a manufacturing plant at 1300 Barth street.

MISHAWAKA, IND.—Dodge Mfg. Corp. has awarded the contract for structural steel for a shop extension to Indiana Bridge Co.

RICHMOND, IND.—Richmond Hammered Ring Co. has been incorporated with 500 shares no par value stock to manufacture and deal in metal products by Wilbur C. Hibbard, Earl W. Allen and Richard A. Booker.

SOUTH BEND, IND.—Studebaker Corp. has awarded the general contract for the construction of a 2-story plant, 240 x 432 feet.

SOUTH BEND, IND.—Bendix Brake Co. plans to start work on its new addition, 200 x 300 feet, immediately. H. G. Christman Co., South Bend, is the general contractor for the project. Indiana Bridge Co. has received the contract for structural steel for the plant.

TERRE HAUTE, IND.—Highland Iron & Steel Co. plans to start work immediately on another plant unit which will give it a third mill and which will increase capacity 25 per cent. The unit is expected to be completed Nov. 1.

ALBION, MICH.—Decker Screw Products Co., V. E. Decker manager, Mulberry and Huron streets, plans to build a 1-story manufacturing plant. P. T. Sharp, 111 West Ash street, is architect.

DETROIT—Koch Steel Metal Co. contemplates building a new plant on the Michigan Central railroad near Center Line.

DETROIT—Hupp Motor Car Co. has awarded the general contract for the shipping, engineering and storage building and loading docks, to include heating, lighting, etc.

DETROIT—Chevrolet Motor Co. has an assembly plant under construction at Kansas City, Mo. Its new assembly plant at Atlanta, Ga., has been opened recently.

DETROIT—Kay & Jay Mfg. Co., 6525 Lincoln avenue, has been incorporated with $4000 capital to manufacture and deal in metal stampings and general machine work, by Clarance R. Davis, Edward S. Davis and Fred G. Jones.

DETROIT—Industrial Metal & Welding Co., 1024 First National Bank building, has been incorporated with $10,000 capital to manufacture and deal in welding flux, foundry flux, welding rods, metals, etc., by Frank E. Elge, 1717 Virginia Park.

DETROIT—Structural steel for the research building to be built for General Motors Corp. has been awarded to Whitehead & Kales, Detroit. The general contract was let to Everett Winters Co. Albert Kahn is architect. (Noted June 28.)

DETROIT—Madaras Rotor Power Corp., 2216 Penebscot building, has been incorporated with $1,750,000 capital to develop and research electrical, aerodynamic and other power producing equipments and projects and conduct manufacturing business, by Julius D. Madaras, 2314 Longfellow avenue.

GROSSE ILE, MICH.—W. W. DeLange was low bidder for the metal naval airport hangar, machine shop, storage space, etc., to be located here. Verner, Wilhelm & Molby, Detroit, are architects.

GROSSE POINTE, MICH.—General contract

Exports of Farm Tools Make New Total

Exports of agricultural implements from the United States in the first half of 1928 were larger than in any previous six months period, and were characterized by shipments to Canada which had never before been equaled for any similar period, according to the agricultural implements division, department of commerce.

Total shipments of implements to Canada during the period under discussion amounted to $23,418,598, which was 43 per cent of the shipments to all countries. It was an increase of 73 per cent over exports to Canada during the first half of 1927, and exceeded Canadian purchases of American implements for any preceding 12-month period with the exception of 1927.

Argentina was the second largest buyer of American implements, as in the first half of 1927. Shipments to Argentina also increased, but not to an extent sufficient to indicate any important changes in the market. Russia and Australia ranked third and fourth as purchasers of American implements.

Exports More; Imports Are Less

Washington, Aug. 28—Exports increased and imports decreased in July of this year compared with the same month of last year, according to the department of commerce.

In July exports were valued at $382,000,000, compared with $341,809,000 in the same month of last year, while in July of this year imports were valued at $316,000,000 and $319,298,000 in July of last year. In July of this year the value of excess of exports over imports was $66,000,000, compared with $22,511,000 in July of lats year.

During the seven months ending July of this year exports were valued at $2,759,533,000, compared with $2,708,102,000 for the same seven months of last year. During the same period ending July this year imports were valued at $2,401,866,000, compared with $2,442,473,000 for the seven months ending July last year. For the seven months ending July this year the value of the excess of exports over imports was $357,667,000, compared with $265,629,000 for the same period of last year.

for the engine house to be built here for the village of Grosse Pointe has been awarded to E. C. Chase, Detroit. Charles L. Phelps is architect.

HOLLAND, MICH.—Federal Stamping Co. plans to double the size of its present plant this fall, and, in addition, to install new machinery and equipment.

IRON MOUNTAIN, MICH.—Locktite Co., Carpenter avenue, has been incorporated with $24,000 capital to manufacture and deal in a patented light lock by Selmer A. Clemetson, 213 Pinehurst street, Iron Mountain.

MUSKEGON, MICH.—Rodgers Boiler & Burner Co. plans to rebuild that part of its plant burned in a fire recently. (Noted June 21.)

PONTIAC, MICH.—General contract for the five buildings to be built here for the Oakland Motor Car Co. has been awarded to A. W. Kutsche & Co. (Noted Aug. 16.)

CAMBRIDGE, O.—Akron Coal Co. plans to rebuild its power plant and boiler room at its Goodyear mine, damaged in a recent fire.

CINCINNATI—General Aeronautical Corp., C. G. Dietz, 3336 Trimble avenue, manager, plans to build a 1-story airplane plant. H. Neilson Jackson, 810 Mercantile Library building, architect.

CLEVELAND—New York, Chicago & St. Louis railroad, Terminal Tower building, plans to build a 1-story engine house addition.

CLEVELAND—Federal Foundry Supply Co. is building a plant, 90 x 280 feet, 1 and 2-stories. Construction includes an office building, 25 x 120 feet; machine shop, 60 x 90; stock room, 90 x 100 and grinding room, 90 x 100. The mill will be equipped with modern machinery for the manufacture of foundry facings, parting compound, etc. (Noted July 12.)

TOLEDO, O.—Toledo Porcelain Enamel Products Co. has been incorporated with 2000 shares no par value stock by Earle S. Smith.

APPLETON, WIS.—Wisconsin-Michigan Power Co., 112 East College avenue, is planning a power development over a period of three years on the Sturgeon river, in Baraga county, Mich. It has acquired the holdings of the Sturgeon River Syndicate, consisting of 17,000 acres along the Sturgeon river, and plans are now being made by E. H. Schnidman, hydraulic enginneer for the company. C. K. Ellis, Appleton, is vice president and general manager.

CRANDON, WIS.—Jerry Donohue Engineering Co., Sheboygan, Wis., is preparing plans for a municipal water works and sewerage system on which bids will be taken late this fall for 1929 construction. Plans contemplate a system of 18,000 feet of 4 to 8-inch water mains, pumps, pumping station and elevated steel tank. G. L. Ferguson is city clerk.

MADISON, WIS.—Chicago & North Western railroad will build a power plant and has awarded the general contract for its construction to J. H. Kelly, Madison.

MILWAUKEE—Globe Steel Tubes Co., 1345 Burnham street, will utilize its own forces to build a 1-story plant addition, 200 x 300 feet.

MILWAUKEE—Wesley Steel Treating Co., 651 South Pierce street, is enlarging its plant by a 1-story addition, 45 x 50 feet. Architects Siebert & Kegler, 230 Wisconsin avenue, are in charge. Charles I. Wesley is president.

OSHKOSH, WIS.—The common council is completing the purchase of a site for a municipal garbage incinerating plant and is making a study of various systems in operation in other cities. The system is planned for a population of 75,000. Emma Hebel is city clerk.

RACINE, WIS.—Belle City Malleable Iron Co., Kewaunee street, has let contracts for the construction of an addition, 77 x 100 feet, to its annealing building at St. Patrick street and the Chicago & North Western right of way.

SHOREWOOD, WIS.—The board of school district No. 4, Adolph Hafner, clerk, is asking sealed bids until Aug. 24 for an Arts and Science building and a boiler and power house as additions to the present Shorewood High school group at East Capitol drive and Oakland avenue. Plans are by Herbst & Kuenzli, architects, 130 Wisconsin avenue, Milwaukee.

TWO RIVERS, WIS.—Aluminum Goods Mfg. Co., general offices, Manitowoc, Wis., is preparing to enlarge the local plant. Plans are being completed by Lockwood, Greene & Co., 400 North Michigan avenue, Chicago.

Southern States

ANNISTON, ALA.—Anniston International Co. has been incorporated with $50,000 capital to manufacture and deal in agricultural implements, by W. C. Compton, I. B. Dawson.

PADUCAH, KY.—City will vote on building a power plant. Burns & McDonnell Engineering Co., 402 Interstate building, Kansas City, Mo., is engineer.

NEW ORLEANS—Structural steel for a city incinerator has been awarded to Ingalls Iron Works Co., Birmingham, Ala.

NEW ORLEANS—Todd Engineering, Dry Dock & Repair Co. has completed a 1500-foot wharf on the Mississippi river, also an office building, shop and boiler house. A 15-ton electric traveling crane has been installed for loading and unloading purposes.

NEW BERN, N. C.—Plans are under discussion for enlarging the water and light plant.

OKLAHOMA CITY, OKLA.—Hobbs Mfg. Co., Fort Worth, Tex., manufacturer of truck trailers, has been granted permit to do business in Oklahoma. Initial capital is $10 000.

PICHER, OKLA.—National Zinc Co. has increased capital in Oklahoma from $737,000 to $900,000 and may consider expansion. W. H. Robinson, 120 East Fourth street, Joplin, Mo., is district manager.

TULSA, OKLA.—Superheat Products Co., 1516 East Sixth street, has been organized by Paul C. Hughes and associates with intention of manufacturing gas burners.

TULSA, OKLA.—Central States Power & Light Corp., Commercial building, plans acquisition of new properties and extensive improvements in the Southwest. E. H. Poe is southwestern district manager.

TULSA, OKLA.—Leland Equipment Co. is building warehouse and office building, 150 x 160 feet, at Archer and Guthrie streets. A department of the new plant will be devoted to servicing and repair of trucks and contractors' equipment.

TULSA, OKLA.—Oklahoma Steel Castings Co. has awarded the contract for an extension, 50 x 50 feet, to its finishing department, to Industrial Construction Steel Co., Tulsa. New machinery has been purchased by the Steel Castings company. (Noted Aug. 23.)

TULSA, OKLA.—Sinclair Pipe Line Co. is asking bids on 360 miles of 8-inch, 10-inch and 12-inch pipe for looping its line from Cushing, Okla. to East Chicago, Ind. Equipment for 12 pumping station units is also asked. Capacity of line when completed will be approximately 25,000 barrels a day. J. R. Manion, Sinclair building, is president and general manager and J. F. Blake is general superintendent.

TULSA, OKLA.—Jones Mfg. Co., manufacturer of oil tools and playground apparatus, has been adjudged bankrupt and all equipment and plant machinery belonging to the company was offered at public auction Aug. 28. Company's former location at 1702 East Sixth street has been leased to Progressive Brass Mfg. Co. of Kansas City, which after Sept. 1, is moving a portion of its machine shop to Tulsa to supplement the foundry in handling heavier work at its Tulsa branch. G. O. Doolittle is plant superintendent.

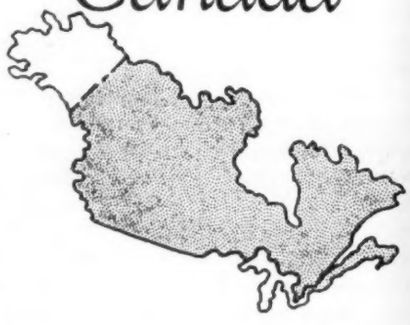
KNOXVILLE, TENN.—University of Tennessee, T. D. Morris, secretary of South college, plans to build a laboratory building for the department of chemistry. Barber & McMurry, General building, Knoxville, are architects.

LOCKHART, TEX.—Texas Power & Light Co. has acquired water rights at Martindale, Tex. and is negotiating for purchase of the power plant now owned by Fentress Gin Co., supplying light and power to several small towns in that portion of the state.

ORANGE, TEX.—Orange Car & Steel Co. has contract for erection of hangars at Orange municipal airport which is being enlarged and improved.

COVINGTON, VA.—Industrial Fibre Co., West Ninety-eighth street and Walford avenue, Cleveland, has awarded the general contract for a 1-story plant and power plant 330 x 831 feet, to be built here, to Fiske-Carter Construction Co.

Canada



ST. BONIFACE, MAN—Dominion Wheel & Foundries Ltd., Archibald street, has awarded contract to the Wyndels Construction Co. Ltd., 654 Aulneau street, for the erection of an addition to its plant. 1-story, 38 x 40 feet.

ST. JOHN, N. B.—New Brunswick Power Co., Dock street, has let contract to Sanderson & Porter, New York, for addition to its plant on Dock street.

TRURO, N. S.—Truro electric commission has awarded contract to Frank Wilson for

(*Concluded on Page* 560)

Timken Sweeps On!

EVERY one familiar with Industry knows how the use of Timken Bearings in every type of mechanical equipment has been increasing phenomenally—until Timken Bearings are today a conspicuous factor in industrial economics.

Timken's position is indicated not alone by the *number of equipment makers* who feature Timken Bearings. It is indicated not alone by the *prominence of the makers* who equip with Timkens. It is indicated not alone by the *variety of application*, for there are Timkens at all of the important points in many machines. Timken's position *is* indicated by the combination of all these factors.

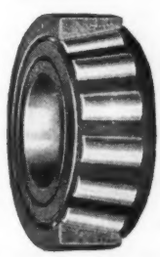
Why this remarkable trend to Timkens? Simply performance on the job, made possible by Timken *POSITIVELY ALIGNED ROLLS*, the Timken tapered principle, and Timken electric steel. The *user* knows what that means. His experience with Timken-equipped machines, over a period of years, has proved conclusively that Timken rigidity, stamina, and endurance are essential for the most satisfactory operation *and profits*.

Timken's position throughout Industry was inevitable. Every month sees more great equipment makers adopting Timken Bearings; more plants and industries going to a Timken-equipped basis.

Is it due to advertising, merchandising, salesmanship? They have helped, but only because they tell of the superiority of a superior product. Clear superiority is what has created Timken eminence in all Industry. Timken's position was inevitable. Timken sweeps on—to dominance.

THE TIMKEN ROLLER BEARING CO., CANTON, OHIO

TIMKEN *Tapered Roller* **BEARINGS**



Construction and Enterprise

(*Concluded from Page* 558)

the erection of an addition to power plant on Walker street.

DUNDAS, ONT.—Dominion Lightning Rod Co., is having plans prepared for establishing a plant at 63 Main street in connection with which tools and equipment will be purchased.

KITCHENER, ONT.—Dominion Truck Co., South street, is having plans prepared by B. A. Jones, Ontario street south, for addition to its plant.

NEW TORONTO, ONT.—Goodyear Tire & Rubber Company of Canada will erect a 4-story addition to its plant 100 x 300 feet which will increase its output by 33 per cent.

PETERBOROUGH, ONT.—Canadian General Electric Co., head office, Toronto, Ont., has awarded contract to R. Sheehy & Sons, 751 George street, for the erection of unit No. 1, in connection with two building plant additions here.

PETERBOROUGH, ONT.—Bulk tenders, (exclusive of mechanical trades) are being received by E. G. Patterson, superintendent of the Canadian General Electric Co., here, until Aug. 31, for the construction of a punch press building on Park street, to be 1-story, 110 x 328 feet, steel and brick construction. Bids for tools and equipment to be called later.

PETROLIA, ONT.—Gale Iron Works Ltd. has been incorporated to manufacture and deal in steel window sashes, windows and ornamental iron, brass and bronze, with $150,000 capital and 3000 shares no par value stock by Albert W. Lau, Kenneth C. Kerr, Westely R. Thompson.

SARNIA, ONT.—Sarnia Steamship Ltd. has been incorporated to carry on the business of transportation and construct steamships, vessels and barges, with $800,000 capital by Robert S. Misner, Ross W. Gray and John Cowan.

SCARBORO, ONT.—Contracts for an addition to the filtration plant have been awarded to R. H. MacGregor for the building and to the Water Equipment Co. for installation of the equipment.

ST. THOMAS, ONT.—Elgin Motors Ltd. has been incorporated to manufacture and deal in automobiles, tractors, motor cars, etc., with $40,000 capital by Edmund Butterworth, William E. Rowe, Robert W. Johnson and others.

TORONTO, ONT.—Barnes Top & Trimming Co., 137 Adelaide street west, will not proceed with the erection of its proposed factory on Phipps street, until next spring.

TORONTO, ONT.—Toronto Terminal Railway Co. Union Station has awarded contract to the Peter Lyall Construction Co. Ltd., for the construction of a central power plant here, steel and brick.

TORONTO, ONT.—Gudie Motor Mfg. Co., 105 Sherbourne street, has let contract to H. Walker, Shine drive and Kingston road, for the erection of a manufacturing plant. Building to be 1-story, 70 x 70 feet, brick construction.

TORONTO, ONT.—De Forest Crosley Radio Co. Ltd. has been incorporated to manufacture and deal in radio, wireless, and electrical equipment, with 50,000 shares no par value stock by Donald H. Rowan, Haswell F. Parkinson, Frederick G. Gardiner and others.

TORONTO, ONT.—Webber Machine Co., 848 Dupont street, has let contract to H. A. Wickett Co. Ltd., 156 Front street east, for the erection of a plant on Birch avenue, to be 2-story and basement, 67 x 78 feet, steel and brick construction. Architect H. G. Duerr, Lumsden building.

TORONTO, ONT.—Canadian Batteries Ltd. has been incorporated to manufacture and deal in storage batteries, etc., and to carry on the business of electrical, mechanical and hydraulic engineer and contractor, with $50,000 capital and 5000 shares of no par value stock by Morley H. Breuls, Urban D. Clark, and Robert R. Sirrs.

WALKERVILLE, ONT.—Dominion Forge & Stamping Co. has let contract to Allen Earl, 24 Equity Chambers, for 1-story addition to plant on Walker road, to be 55 x 60 feet, steel and brick construction.

WESTON, ONT.—Willys-Overland Ltd. will build a 4-story addition to its plant to be 60 x 260 feet, reinforced concrete, steel, stone and brick construction, in connection with which bids are being received by M. J. Streyffert, engineer.

BRYSON, QUE.—Gatineau Power Co., contemplates installing two new units to its present plant here.

GATINEAU, QUE.—Canadian Hydro Electric Corp. will start work at once on the construction of a substation here. C. Glidden, is engineer.

HULL, QUE.—Gatineau Power Co., a subsidiary of the Canadian Hydro Electric Corp., Gatineau, Que., proposes to build a switching station here.

MAGOG, QUE.—City council has let contract to the Newton Construction Co., 165 Portland avenue, Sherbrooke, Que., for replacements and repairs to local hydroelectric power plant. Engineer, C. A. Crepeau, 30 Wellington street north, Sherbrooke, Que.

MONTREAL, QUE.—Optic Electric Moving Signs Ltd. has been incorporated to manufacture and deal in electric signs and devices with 1000 shares no par value stock by Jack Sieber, Martin Sieber, and Edward Davany.

MONTREAL, QUE.—Canadian Hydraulic Jacks Ltd. has been incorporated to manufacture and deal in hydraulic jacks, hoists, automobiles, trucks, etc., with $100,000 capital by Joseph Shapiro, Benjamin Robinson and Sol S. Fels.

MONTREAL, QUE.—New Brass Ware Co. of Canada Ltd., 2320 Aird street, has let contract to the Dakin Construction Co., 270 Beaumont street, for the erection of a 1-story addition to its foundry to be 43 x 100 feet, steel and brick construction. Foundry equipment to be purchased later.

QUEBEC, QUE.—Chaleur Bay Power Co. has let contract to T. E. Rosseau Ltd., 42 Second avenue, for the construction of a power plant and dam on the Hall River near Bonaventure. Engineers, Langlais, Ricard & Royer, 126 St. Peter street, Quebec.

REGINA, SASK.—Canadian Industries Ltd., Toronto, Ont., is having plans prepared for the erection of a plant here.

New Trade Publications

ARC WELDERS—Fusion Welding Corp., Chicago, describes in a bulletin its line of arc welders, and explains advantages arising from their use. It is illustrated.

PORTABLE ELEVATORS—A current bulletin by the Revolvator Co., Jersey City, N. J., is devoted to barrel, drum and keg racks used in storing containers in connection with its portable elevators.

ROLLER BEARINGS—Hyatt Roller Bearing Co., Detroit, in a current broadside calls attention to the enlarged use of its bearings in railroad cars, to promote comfort of passengers and reduce cost of operation.

AUTOMATIC DIES—Jones & Lamson Machine Co., Springfield, Vt., in a current bulletin, features two new sizes of automatic dies, for large dimension threading, to give accuracy. Die heads of corresponding size are also announced. They take work 1½ to 3-inch thread.

CONVEYORS—Stephens-Adamson Mfg. Co., Aurora, Ill., is publishing a series of 24-page bulletins under the tile "The Labor Saver." They contain drawings and concise descriptions of typical installations of conveying and elevating machinery.

ELECTRIC MOTORS—American Electric Motor Co., Cedarburg, Wis., has issued two bulletins, one devoted to actual installations of its pipe ventilated motors and the other to the motors. In the latter its four types of motors are described and illustrated in detail.

SLING CHAINS—S. G. Taylor Chain Co., Hammond, Ind., manufacturer of welded chain, has published a revised blueprint containing data relative to safe working loads for its sling chains at various angles and suggestions relative to the proper use of chains.

CONTAINERS—Geuder, Paeschke & Frey Co., Milwaukee, has published a catalog describing representative numbers of its line of containers. It takes up container problems and their solution. In addition to its standard line this company designs and produces special containers for specific needs of manufacturers.

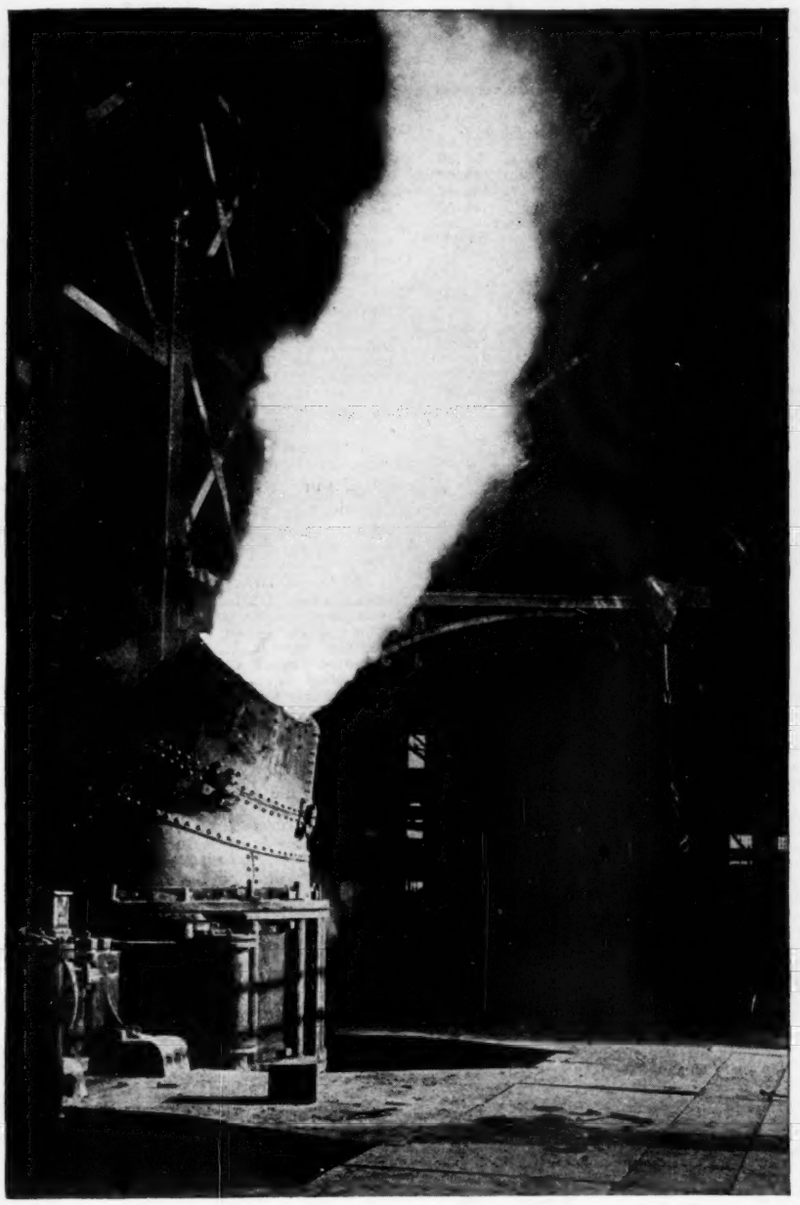
WATER TUBE BOILER—Two bulletins by the Erie City Iron Works, Erie, Pa., are devoted to its type of 3-drum water tube boilers. One covers the boiler in a general way and the other especially with relation to industrial plants. They are well illustrated to show construction in detail and in gross.

CRANES—Cleveland Crane & Engineering Co., Wickliffe, O., has published a catalog covering its arc-welded roller-bearing crane. It describes construction features of overhead traveling cranes in which arc welding is used instead of riveting, and in which roller bearings are used throughout. Illustrations cover details of construction and equipment.

FORGING DIES—Interstate Drop Forge Co., Milwaukee, is distributing a bulletin describing die construction and board drop hammer forging operation. It gives in nontechnical language an explanation of general operations and terminology common to the industry. Subjects covered include the board drop hammer, die blocks, die sinking and resinking, lock dies, layout, trimming and punching, draft, cleaning, restriking and lead casts.

FLEXIBLE SHAFT EQUIPMENT—Catalog No. 24, issued by the N. A. Strand & Co., 5001-5009 North Lincoln street, Chicago, gives information on the complete line of products manufactured by the company. The flexible shaft equipment used for grinding, polishing, buffing, match brushing, rotary filing, sanding, drilling, and reaming, is discussed. Illustrations show various types of equipment and numerous illustrations.

The first essential of quality steel pipe is Good Steel



Charge of pig iron being converted into steel in Bessemer Converter, in one of the Bethlehem Steel Company plants.

THE new pipe mills of Bethlehem Steel Company are scientifically laid out, and equipped with modern machinery. All operations are under the close supervision of men with long, successful experience in pipe manufacture.

But these advantages would count for little or nothing if it were not for the character of the material used in Bethlehem Steel Pipe. If there is one thing above another that is necessary to quality steel pipe it is good steel. There is no substitute for it.

Bethlehem Steel Pipe is made by an organization with more than half a century of experience in producing every kind of steel for almost every conceivable use. Steel used in the manufacture of Bethlehem Pipe is made especially for the purpose, to formulas developed by Bethlehem Metallurgists. It is the most suitable steel for pipe manufacture that it is possible to produce.

Bethlehem Steel Company makes Bethlehem Pipe and stands back of it.

You can depend on Bethlehem Steel Pipe. It meets every test.

BETHLEHEM STEEL COMPANY
General Offices: Bethlehem, Pa.

District Offices: New York, Boston, Philadelphia, Baltimore, Washington, Atlanta, Pittsburgh, Buffalo, Cleveland, Detroit, Cincinnati, Chicago, St. Louis, San Francisco, Los Angeles, Seattle, Portland and Honolulu.

Bethlehem Steel Export Corporation, New York
Sole Exporter of our Commercial Products.

Bethlehem Steel Pipe is the product of a complete steel producing organization.

BETHLEHEM STEEL PIPE

The name "Bethlehem" appears at intervals on every length of Bethlehem Steel Pipe.

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized. Extra 5 per cent granted in the 4th quarter 1927 and 1st quarter 1928 discontinued April 2, 1928.)

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLINGS

Butt Weld

¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 3-inch	26	11
3 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14

Lap Weld

2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½-inch	+13	+25
3 and 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	.....

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized.)

Boiler Tubes

Pittsburgh carload discounts. Less carloads 4 points less

STEEL (Lap Weld)

2 and 2¼-inch	27 off
2½ and 2¾-inch	37 off
3-inch	40 off
3¼ to 3¾-inch	42½ off
4 to 13-inch	46 off

(Note—Additional discounts of seven extra 5 per cents now being given on 21,000 pounds or more.)

CHARCOAL IRON

1½-inch	+18
1¾-inch	+ 8
2 and 2¼-inch	2 off
2½ to 3-inch	7 off
3¼ to 4½-inch	9 off

(Note—Additional discounts of two 10's and one 2½ now being given on 12,000 pounds or more.)

SEAMLESS COLD DRAWN

1-inch	63 off
1¼ and 1½-inch	55 off
1¾-inch	39 off
2 and 2¼-inch	34 off
2½ and 2¾-inch	42 off
3-inch	48 off
3¼ and 3½-inch	50 off
4-inch	53 off
4½, 5 and 6-inch	45 off

SEAMLESS HOT ROLLED

2 and 2½-inch	40 off
2½ and 2¾-inch	48 off
3-inch	52 off
3¼ and 3½-inch	56 off
4-inch	59 off
4½, 5 and 6-inch	48 off

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.30 per cent.....50 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Net prices per foot f.o.b. Pittsburgh Gage	Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅜-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge, (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including 115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c
Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.	

GAGE

Plates Not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds per square foot ..... .20c

Plates Over 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot ..... .20c

Plates ordered 7.65 pounds per square foot ..... .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull materials subject to U. S. Navy Dept. specifications for medium or soft steel	.10c
High tensile hull steel subject to U. S. Navy Dept. or equivalent specifications	1.00c
Boiler steel subject to U. S. Navy Dept. specifications, classes A and B	1.50c
Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.	

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection ..... No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet.....No extra

Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)

Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra ..... .20c